AMERICAN BEE JOURNAL

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Honey Vinegar Making

By Russell H. Kelty.

ALTHOUGH it is possible to make honey vinegar by the old-fashioned method of allowing a honey-water solution to set out in the sun for several months, the quality of the product in no way compares with that which is properly prepared. In fact the making of honey vinegar is an entirely different matter from the common method of making cider vinegar. Perhaps this is the reason why so many have had indifferent success in their attempts. Surely there is no better way to utilize honey which is just a little off-color or of poor flavor, or better yet, honey containing the spores of Bacillus larvæ.

In the first place, it is necessary to have an idea of the requirements and method of procedure. To manufacture honey vinegar for sale it is necessary to have a permit and secure a bond. This can be arranged for through the district Internal Revenue Office; but for complete instructions the beekeeper should write to the U. S. Treasury Department at Washington and secure a bulletin giving the Federal Regulations and Department rulings regarding the manufacture of fermented vinegars. We understand that it is not necessary to have the permit and bond to make vinegar for home use, however.

In the second place, the beekeeper should know that there are two distinct stages in the process of making the vinegar. In the first stage the invert sugars in the honey are converted into ethyl alcohol and carbon dioxid gas by the action of a champaign yeast, Saccharomyces ellipsoideus. In the second stage the ethyl alcohol is oxidized by the action of the organism Bacterium aceti, commonly called mother of vinegar, being thus changed over into acetic acid and water.

For best results these two stages must be entirely separate from each other. That is, the fermentation must be entirely completed before allowing the mother of vinegar to change any alcohol to acetic acid. For as soon as there has been produced a relatively small amount of acid, the fermentation will be checked.

Since fermentation goes on most rapidly at a relatively high temperature, about 70 to 80 degrees, it is advisable to start the vinegar during the hottest part of the summer, if outdoors, or else in a warm room. Otherwise the rate of fermentation is very much slower, and is often incomplete and unsatisfactory. For no matter how thick the honey-water solution may be, unless sufficient fermentation takes place to produce a solution of at least 5 per cent alcohol, the acetic acid content will not be sufficient in the finished product to be legally sold for vinegar.

All utensils used in the process, the barrel itself, the tank in which the honey and water are mixed and the honey as well should be sterile. If a used vinegar barrel is to be cleaned, rinsing with hot water is not enough. The barrel should be steamed out for twenty minutes or else sterilized with one of the common dairy disinfectants used in sterilizing dairy equipment, and then rinsed thoroughly. Unless the barrel is absolutely sterile a cross fermentation may spoil the batch of vinegar. Also, the barrel should be soaked thoroughly before sterilization to insure its being air and water tight.

Before actually starting to make the vinegar, it is well to secure the culture of champagne yeast, together with the chemical salts which stimulate the growth of yeast and rate of fermentation. These may be secured from the Bacteriology Department, Michigan State College, East Lansing, at cost, the price being 25 cents for yeast culture and 25 cents for the chemicals, in quantities sufficient for a barrel of vinegar. The chemicals used are either two ounces each of potassium tartrate and ammonium phosphate, per barrel, or four ounces of ammonium chloride, two ounces of potassium bicarbonate and two ounces of sodium phosphate per barrel, the latter formula being the cheaper. It is not absolutely necessary to add the chemicals, but they assure better fermentation.

A list of materials needed to make a 40-gallon barrel of honey vinegar is as follows:

One clean barrel, a clean tank to mix the honey and water in, a stand to set the barrel on, a soft pine bung, a piece of one-quarter or three-eighths inch glass or copper tubing, six or eight inches long, a piece of rubber tubing the same size or a little smaller about a foot long, 45 pounds of honey; the yeast culture and chemical salts, 30 gallons of water.

Heat the water to near boiling, and mix honey and water in the tank.

Stir thoroughly until no honey remains undissolved. If the honey and water are mixed directly in the barrel, care must be taken to see that all honey is dissolved, because what settles out at the bottom of the barrel may not be used. When thoroughly mixed, the honey-water solution should test 15 per cent with a saccharimeter or 8.5 degrees on a Baume hydrometer. If cappings honey washings are being used, therefore, a saccharimeter is necessary to tell how much more honey should be added, if any. In this connection, cappings washings that have started to ferment will not be satisfactory unless boiled five minutes to kill the yeasts or bacteria responsible for the fermentation.

When the honey and water are thoroughly mixed allow to cool to room temperaure. Then dissolve the chemical salts in about two quarts of the honey-water, stirring until entirely dissolved. Do not use hot water for this purpose, or the ammonia will be lost as a gas. Then pour the honey-water in the barrel, add the yeast culture and drive in the bung tightly.

With a bit the same size as the glass or copper tubing, bore a hole down through the bung, insert the tubing, attach the rubber hose, place the free end of the rubber hose in a glass of water, seal the joints and unions of the hose and tubing, bung and barrel, with paraffin or sealing wax made of four parts beeswax and one part resin, and the solution is ready for the fermentation stage.

If the barrel has been sealed air-tight, two days later carbon dioxid

gas will commence to pass out through the end of the hose which is under water, making a sort of "glub" sound that becomes as regular as the ticking of a watch for a period of two weeks or more. When the fermentation period is over, as indicated by the cessation of the "glub" of the water when gas is discharged, the barrel is opened by removing the bung. At least three weeks should be allowed for fermentation, even if no gas is discharged toward the end of the period.

The culture of Bacterium aceti, or mother of vinegar, which can also be procured from the Michigan State College for 25 cents, is then added to the fermented honey-water solution. During the second stage, when alcohol is being changed into acetic acid, the barrel should remain open, a piece of cheesecloth being fastened over the bung hole to keep out dirt and insects. Since the mother of vinegar grows on the surface of the liquid, the barrel should not be moved during the second stage, or the mother of vinegar may sink to the bottom and die.

Five to nine months may be required to complete the second stage of the process, the time varying with the temperature and the amount of alcohol in the solution. A warm temperature is just as desirable for the second stage as the first, but inversion will go on slowly at a cooler temperature.

If the original honey-water solution contained 15 per cent sugar, and if fermentation and inversion stages were completed, the honey vinegar should contain from seven to nine per cent acetic acid. In most states the law requires but four per cent acetic acid in vinegar, and housewives are quick to notice the superior qualities of the vinegar made from honey.

The color of the finished product will be about the same as the color of the original honey-water. There is a delicate flavor imparted to the vinegar by the champagne yeast which adds to its usefulness for salad making and pickling. In fact, if it is properly made, honey vinegar will readily sell itself on sample.

Bones In Honeycomb

The fishbone in comb is often spoken of, the tougher central portion of the comb being given this name. Real bones in honey are a rarity which we only occasionally see. A mouse may run into the space between the two combs and there be stung to death. Its body is too large for the bees to remove and eventually some of the bones of the mouse will become imbedded in the comb.

Three or four years ago I helped remove the bees and combs from a large cavity in an oak where the bees had built their home. The honey reached down perhaps twelve inches and, below that, the brood extended a foot or more. Close to the junction of the sealed honey and the brood I noticed something abnormal. Inspection showed the skull of a gray squirrel well imbedded in the honeycomb. Close by it were some of the leg bones. Now then, how did the skull get there?

It is obviously out of the question to think that the squirrel, like the mouse, ran up amongst the combs there to be stung to death. Even if such should happen, one can hardly conceive that the decaying body would fail to slump to the bottom of the cavity in the tree. It is also impossible that the bees could lift that skull to its position. There is then but one explanation remaining. It is similar to the generally accepted manner in which the big stones reached their position in the great pyramids, namely, the stones and the squirrel reached their place when those places were at the bottom of things.

When the bees took possession of that cavity in the oak it had previously been the home of squirrels for generations. There had accumulated, in the hollow, waste from tree and squirrels to a depth of neariv two feet. The bees built their combs to the top of this material and gradually carried out all the accumulated waste which they encountered, that is, all such as they could carry out. The bones of a squirrel became uncovered and most of them being too heavy for the bees, they stuck up from the refuse. The newly-built combs were attached to these protuding bones. As more waste was removed the combs were gradually extended until the bones were completely engulfed.

I placed these combs containing the bones into the pails provided by the other fellow. He was to have the honey, I to have the bees. I have never asked him whether he found toothpicks in his honey already provided for his use.

Allen Latham,
Connecticut.

My Method of Selling Honey

About six years ago we began keeping bees. We produced comb honey and the problem of selling was a real one, as some very large bee-keepers live near, fully equipped with trucks, and it seemed as if they had all the trade; but this year I have had to turn away customers.

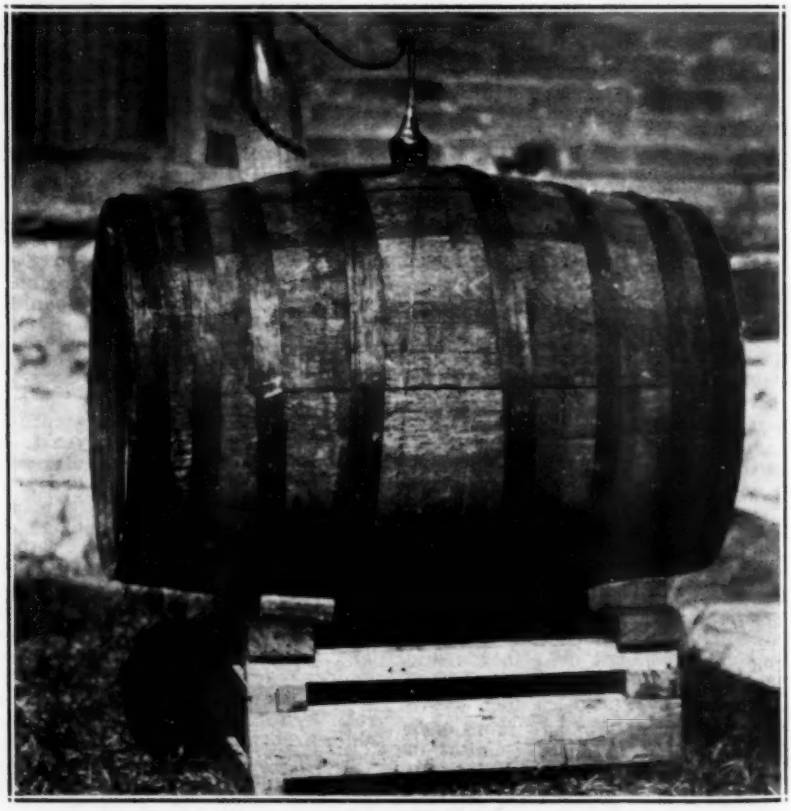
Every farmer knows there are many cakes of comb honey that are not number 1, some are about three-quarters full and cannot be sold.

I sell all my honey by the "dollar's worth," which is four good cakes and one poor one. The people come to the house here (on a cross-road) for the "dollar's worth." That extra cake, always more than half filled, sells the rest and I never have to make change.

I save the clean breakfast food boxes, whether shredded wheat or corn flakes, and pack the honey in these boxes. I have a few nice boxes for a few city customers that pay a straight price per cake, but it seems as if the "dollar's worth" was very popular.

Any cakes of honey too poor to sell, I strain for our own use, but I feel I have a good system for selling.

E. M. F.



Barrel, tubing, hose and bottle of water, as arranged during the fermentation stage of honey vinegar making.

Honeydew From Oak Galls

By Lewis H. Weld.

IN a recent paper on "Galls That Secrete Honeydew," in the Bulletin of the Brooklyn Entomological Society, Dr. J. Bequaert cites a dozen instances in Europe and as many more in America where galls on oak secrete honeydew during the active period of their growth, and it has often been observed that this secretion is attractive to bees, ants, wasps and other insects. The best known instance is the case of the honey-ants in the Garden of the Gods in Colorado, which gather this secretion from the galls on nearby scrub oaks at night and carry it to their underground chambers to be stored up in the abdomens of special workers set aside for the purpose. But neither in the entomological or beekeeping literature does there seem to be a record of a case where such a secretion is of any particular economic importance. For this reason the following account may be of interest:

Mr. A. W. Gambs, a beekeeper at Cottonwood, Shasta County, Calif., sent in to Washington for determination, some immature oak galls with the statement that they secrete honeydew in such quantities in the fall that his bees store up 30 to 40 pounds of honey per hive from this source. Further correspondence resulted in another collection of galls on December 7, some weeks after the fall rains had begun, but by this time the galls had matured and the adult insects had emerged. The galls seem to be those of the cynipid **Disholcaspis eldoradensis** Beut., and are produced on twigs of **Quercus lobata** Nee, locally known as the "river bottom" oak. The galls are somewhat depressed and slightly elongated bullets in clusters on the current season's growth. They have burst out of cracks in the bark along the internodes, remaining broadly attached, the lower half tan-colored and somewhat polished, the upper half darker and deeply fissured, and it is this rugose surface which secretes honeydew during the early stages in the growth of the gall.

Mr. Gambs writes: "These galls are much more plentiful in a season following a mild winter or a dry summer than other seasons. They are on the new growth of wood. They show up here August 10 to 20, growing slowly at first; then when the larva gets a start the gall puffs up, in two or three days breaks through the bark, and will yield for several days. Then another will come on the same twig farther out, and so on. The yield continues until the early rains late in October or November. The galls do not occur on all trees, but one large tree to my personal knowledge has yielded every year for eleven years, while other trees on same soil and same distance from the river, so where sub-irrigation would be the same, do not yield at all. The flow is best when the season is driest. In a wet season, when the late honeyflow is on, from the star thistle and blue curl, only now and then will a colony of bees work on the oaks. The yield was so heavy this year that there were not half enough bees to care for it. Whole trees would look greasy, and when dry the leaves would look slick, the edges white when broken. I have never noticed any yield of honeydew from galls on the leaves of oaks, but we get some honeydew honey from a plant louse on the leaves of a live oak.

"The economic value of honeydew from this source is that it comes as late in the fall as November 1, and this encourages the bees to raise large quantities of late brood and leaves our bees here in the best of condition for early queen raising and to supply package bees to northern beekeepers to make up their winter losses. As this is the most northern point in California where early queens and bees can be raised, honey from this source is as good as better quality honey for bee feed. It is much better for winter stores than honeydew honey from aphids on willow farther south."

Mr. Gambs has a bee range 70 miles south, in a star thistle pasture, whose honeyflow begins in late July and ends in September. This star thistle honey can all be put on the market and his bees then have the rest of September and all of October to accumulate winter stores from oak galls, while other bees not so favorably situated have little to work on in October. As his climate is such that his bees are never more than 10 days without a flight in winter, he is able to winter successfully on this bee food, and in recent years has come to utilize these local conditions to produce queens and package bees, for which the market is good in March, April and May, rather than to run for spring honey. The prolonged late flow not only favors the rearing of brood but enables the bees properly to prepare their "winter nest" inside the hive for outdoor wintering.

A sample comb of honey made from these oak galls is lighter in color than honey made from aphid honeydew, and was found to contain 19 per cent moisture, 0.42 per cent ash, and gave a leverotatory polariscope reading allying it with the true floral produce rather than with the dextro-rotatory honeys produced from the honeydew of aphids.

The honeydew-producing glands of galls seem to consist histologically of tissues produced normally on other parts of the plant and here called into being by the plant in response to the stimulus of the gall-maker. They correspond to the extra-floral nectaries present on many plants, and although here on an abnormal structure, the secretion is a pure plant product. How closely allied chemically it is to the nectar or to the secretion of other extra-floral nectaries on the same plant is not known, for little chemical work has been done in this field. In 1896, Bonnier studied some honeydews of plant origin (but none from galls), and although they differ much in different plants, he concludes that, in a general way, these plant honeydews are different from the honeydews of aphid origin, their composition being more like that of floral nectar.

In spite of its slightly higher ash content this honey, being levorotatory, is closely allied to the true honeys and is much better in quality than the aphid honeydew honeys. It seems unfortunate that the term "honeydew" has been applied to the extra-floral secretions of plants as well as to the apparently similar excretions of insects which are quite different chemically, and the resulting honeys of which are quite different.

Virginia.

Sainfoin In Utah and Colorado

In the "Wyoming Beeline," published at Laramie, Wyoming, by the Wyoming Beekeepers' Association, for August 1st, we clip the following concerning sainfoin:

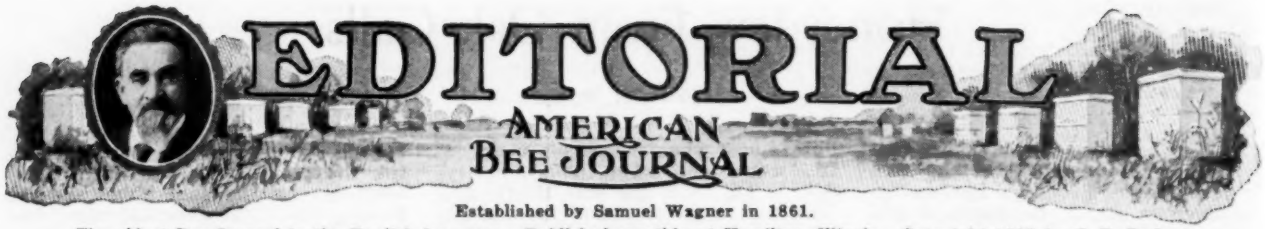
More About Sainfoin

"Mr. T. L. Ball, of the Superior Honey Company, Ogden, Utah, writes: 'Last March, when I was visiting with our good friend Gale H. Patterson, of Delta, Colo., it was my good fortune to sample some honey which was principally of sainfoin origin. Mr. Patterson told me that he had one of his apiaries located in the Ridgway district where there is a very large growth of sainfoin. If I remember correctly, Mr. Patterson told me that the Ridgway district is the only locality in that part of Colorado where sainfoin grows abundantly.' "

"Mr. Frank Rauchfuss, Secretary of the Colorado Honey Producers' Association, writes that sainfoin has been grown successfully in the Wet Mountain Valley of Colorado for quite a number of years. Mercier Hardware Company, Westcliffe, Colo., has a few hundred pounds of the seed quoted at 10c in small lots and 9c in original sacks."

Those of our friends who have expressed their desire of trying sainfoin, after reading what has been published concerning it in this Journal, may now order some home-grown seed, which will be better than the imported seed, as it will be better acclimated.

The Wyoming beekeepers announce their next convention for January 6 to 9, inclusive, at Thermopolis, with "a rich and varied program." C. L. Corkings, Laramie, is secretary.



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Differences of Experiences

Every few days, we realize we must not be too positive with our statements, because in many cases the experience of others differs from our own, owing to differences in location and sometimes in climate. Not long ago, at a beekeepers' meeting in Decatur, Indiana, when I stated that the queens would rarely move to the upper story, if they had large brood chambers and shallow supers, a practical beekeeper asserted that he had found it necessary to use queen excluders, because so many of his queens would move to the upper stories. Very probably, the difference in experience is due to the differences in the honey crop, the bees in his locality having the opportunity to leave open cells at the lower part of the super, close to the brood chamber. This, of course, happens more regularly with full story supers, since there is a greater space to be filled. But in a locality where the bees have occasion to place honey all through a shallow super promptly, if the queen has sufficient room below, there is but little danger of her going above.

Again, many people use shallow supers and frames with a very narrow bottom bar. In a private letter, Mr. Robert Manley, of Bladon, England, complains that the bees build their combs downwards from those shallow super frames and fasten them to the lower story combs, making a very disagreeable condition when they are to be removed for extracting. With us, this happens only when the bees are short of room. But in England, evidently, there is a greater tendency to crowd the honey close to the brood, owing to the cooler climate. So it would look advisable to make supers with a wide bottom bar to the frames, in order to avoid this building down of the combs, during the harvest.

Mr. Manley writes: "My difficulty with the narrow bottom extracting frames is that my bees extend their combs around the narrow strips, and build them solidly to the combs below. When I come to remove a super, these combs break, of course, and honey runs. This comb must be scraped off the top of the frames of the body below the one removed. This state of things is intolerable, especially when honey must be taken off after robbing begins."

Bee Flights and Aerial Navigation

We have received two copies of the bulletin mentioned on this question in our September editorials. One of these has been forwarded to the Miller Library.

This bulletin, of 46 pages, was published in Brussels, Belgium, by the Imprimerie des Travaux Publics. It is entitled: "Rapports Scientifiques entre le Vol de L'Abeille et la Navigation Aerienne." It is in the French language. Dr. Paul Amans, its author, is also the author of 37 different essays upon the flight of insects, upon aeronautics, and in general upon aerial and aquatic locomotion. The work which we have under our eyes contains a preface by Adhemar de la Hault, editor of the Belgian aeronautic review: "La Conquete de l'air" (The Conquest of the Air). It received a gold medal and the prize offered by Mr. de la Hault.

It would be out of the question to give details concerning the contents of the bulletin. It is of a highly scientific nature and contains 27 detailed cuts describing the anatomical structure of the wings and muscles of the wings of different insects, including the bees.

Works of this kind are bound to increase our knowledge of the possible improvements in aerial navigation.

Although we received two copies of the work, we have not been informed of its cost. We sent a small remittance but have not received any statement. But if any of our scientific friends should want a copy, it may probably be had at small cost.

A Successful Beekeepers' Banquet

Through the tireless work of Miss Florence Naile, the efficient secretary of the Ohio Association, a banquet was organized for the evening of August 20th, during the State meeting at Delphos. It was attended by 141 beekeepers, the best attended banquet I ever had the privilege to see, probably owing to the popularity of its toastmaster, friend Muth, who can be funny without saying much.

Mr. Jasper Knight, of Alabama, was present, having come from Cincinnati with Muth. Mr. Knight is not an eloquent speaker, but he can raise a roar of merriment telling, in the dialect of the South, of the watermelons and the darkeys they raise down there. Jasper Knight is one of the leading queen breeders of Dixie. With Dr. Kohn, of Grover Hill, Ohio, who is also a heavyweight and the writer, who is not a featherweight, we supplied good ballast for the Muth automobile. Mr. DeMuth became almost invisible in the crush.

Honey Has Competitors

The statement by some beekeepers that "Honey has no competitors," is very aptly criticized by Mr. Demuth, the editor of Gleanings, in the September number of that magazine. We are not alone in noticing it, for the September Bulletin of the California Beekeepers' Association calls attention to it. Honey has strong competitors both in fruits and in sweets, and it behooves us to keep up a constant campaign in its favor, especially since there is so much prejudice concerning honey and the possibilities of adulteration. Whenever the beekeeper can convince his customers that his honey is really the nectar of flowers, he finds unlimited sale. Don't neglect to educate the customer. There is nothing better than honey, and everybody knows it.

The Hutzelman Solution In Europe

The Station of Apiarian Researches of Cagnes, France, gives a report of F. Vincens on the trial of a water solution of formalin, similar to the Hutzelman solution for foulbrood, with favorable results. The combs were first heavily sprayed with water and allowed to remain 12 hours; then the water was extracted with the honey extractor and the water-formalin solution forced into them. After 24 hours the solution was extracted and the combs placed in healthy colonies, with good results. This is taken from "France Apicole." We still believe, however, that the alcohol solution is more positively safe.

Keep Your Colonies Strong

This Oettl motto, so strongly emphasized by Mr. Langstroth, is recognized as most important by all practical beekeepers. But in spite of our intentions, we are bound to have an occasional weak colony, either by an unexpected loss of the queen, or by a young queen proving worthless, by untimely and undesired swarming, shortage of stores, etc. There are dozens of ways, usually unexpected, in which a colony may become weak. It is true that some beekeepers always keep an eye on their bees and never allow a colony to become weak. But those are exceptional men. I remember an old jeweler, a very good friend of mine, who kept his bees as he kept his jewelry store, always in tip-top order.

When we have weak colonies in the fall, it has always been my plan to unite them, either a weak colony to a medium colony or two or more weak ones together. Some people unite them without killing either queen. To my mind that is a mistake, as the bees may kill the better queen. It is always safer to make the choice of queen ourselves. Besides, there is less occasion for a fight when only one of the colonies united has a queen.

The method of old Dr. Miller was to place the weaker colony on top of the stronger one, using only a newspaper between the two brood chambers. The bees quietly gnaw that paper and the bees become acquainted, usually without any fight, especially if there are no beggars in either colony and they are all amply supplied with food. If there is any fighting, a little smoke, or perhaps a cloud of smoke, to make them fill their honey sacks, is likely to put an end to the misunderstanding. Very few bees return to the old spot, especially if there is no hive left there to remind them of the previous location of their home.

With our large hives, I usually followed a slightly different method of uniting. Each colony was reduced to its smallest possible size, by removing all the combs except three, just enough for the bees to cluster upon. Then, on a frosty morning, in October or November, when the colonies were still quiet, the three combs of the weakest colony, previously loosened, so as to be taken out easily, were removed all together, between three fingers, and hung into the empty space of the stronger colony, at one side. After closing the hive a little smoke is resorted to, to put them into the condition that the French call "bruissement," the peculiar roaring condition of a frightened swarm. All the bees fill themselves with honey and unite in a peaceable manner.

We cannot too strongly urge our beekeepers to unite their weak colonies, before winter sets in.

Bees and Grapes

The "Western Honey Bee," for August, page 243, appears to put the blame on the bees when grape clusters in the vineyard are "left unmarketable." The bees are not to blame, for they only take what the wasps, the hornets, and the birds have already damaged. I know that many grape growers are sure that bees can puncture grapes. But you can starve bees on sound grapes and the idea that bees damage sound grapes is not any better proven than the idea that the sun turns around the earth. We were put through the mill concerning bees and grapes once, in 1879, with dozens of neighbors who positively knew that the bees were of great injury to grapes. We planted 5 acres of vineyard, then, and six years later harvested the largest crop of grapes I ever saw—22½ tons. We invited our grape-growing neighbors to come and see the crop and we have never had a complaint since. Bees are NOT injurious to sound grapes.

An Honor From France

Our editor has just been notified of his election as "membre d'honneur" of the French "Societe Centrale d'Apiculture." This association dates back to 1856, or 69 years. It is one of the oldest in existence. Its headquarters are in Paris at the office of "L'Apiculteur," which is the oldest bee magazine now in existence.

Sweet Clover and Ragweed

Many farmers resent the introduction of sweet clover, as they consider it a noxious weed. Yet many of them do not even notice that our roadsides and our stubble fields are usually covered with one of the most noxious weeds in existence, the ragweed (Ambrosia artemisiæfolia), which very positively is responsible for most of the hay fever in the United States. Traveling through a country covered with this weed, during our trip in Indiana, we saw our friend Mr. Demuth sneeze, over and over, from the noxious influence of this weed, for he is one of the hay fever victims.

Why such a noisome, illsmelling weed should be called "Ambrosia," which was the name of the food of the gods of mythology, is beyond our understanding. Almost any vile name would have been better suited. Its pollen, of rank, unpleasant odor, covers the country in August-September and is disagreeable even to those who are not subject to the pangs of hay fever. It is time that we eradicate it from the face of the country and replace it, since we must have weeds, with the sweet-smelling, honey-yielding sweet clover.

The Oklahoma State Fair

Well, after being informed that the Apiary Building at the Muskogee Free State Fair would not be built this year, as mentioned by us in the editorials of September, we have received a hurry message from Glen V. Mills, the indefatigable worker, that it would be built in time. It appears that the funds were lacking, but Glen V. Mills said: "Screw up your courage and you will not fail." At the last minute, we received the telegram that it would be built and would be finished by September 20th. So, here goes for Oklahoma, since they have done our editor the favor of inviting him to dedicate the Apiary Building, which is to be shaped like a Langstroth hive.

As the Free State Fair lasts from October 3 to October 10, some of our readers may still be able to attend. We do not know on what day the dedicating of the Apiary Building is planned but if it is left to us, it will be about the 7th, which comes on Wednesday.

Local Congresses of Beekeepers

Very good meetings of beekeepers may be organized locally, when a little energy is used to advertise them. During the latter part of August two meetings were organized in northeastern Indiana, by Mr. S. W. Mace, of Middlebury, at Goshen, and Mr. J. Charles Brock, at Decatur. Each had an attendance of some 70 people and a great deal of interest was displayed. Our editor was able to attend both, for they were held the day before and the day after the Ohio State Meeting at Delphos. He could thus "kill three birds with one stone." A feature interesting to us was that both the editor of Gleanings and the editor of the American Bee Journal were present. Through the courtesy of Mr. Muth, who has an excellent automobile, Demuth and Dadant traveled side by side from Delphos to Goshen. It is a pleasure to spend a little time with Mr. Demuth, who is more of a beekeeper than the average commercial beekeeper and is besides an excellent writer and speaker on the subject.

Guarding Against Poor Stores

There are reports from quite an area in the central west that considerable honeydew has been stored in the brood nests, especially in the wooded sections where aphids, in late summer and early fall, often get to be numerous and bees have little to do but gather their sweet excretions. Honeydew is seldom a good winter food and, when it is gathered late in the season to be placed in the brood nests close to the position the winter clusters will take, it is the first stores to be used after cold weather confines the bees. It is our habit to cover the honeydew with sugar syrup, fed as late as possible, after the gathering of honeydew has stopped. This will be stored in the combs, still nearer the cluster and insures good wintering.

The Single Colony Open-straw Pack

By G. H. Cale.

ELSEWHERE in this issue a method is given for packing colonies with leaves. This as a good packing material and for years was used in our yards in a similar manner to the one about to be given. Several years ago one of the men, who had worked for a long time with the details of the leaf pack, suggested that straw might be substituted as a packing material to advantage. It was tried and the results were so satisfactory that now it is the only packing used on the outside of the hives.

It is a cheaper material, even though the leaves are to be had for the gathering and the straw must be bought. The labor of packing and netting the leaves and of handling them in the apiary is more expensive than the cost of the straw. A force of two or three men was formerly used to gather the leaves and bundle them into rope nets. It took quite a number of days to secure enough leaves to pack several hundred colonies. At the hives, the leaves were placed by rake and by hand into wire nets to go about the hives and, as the leaves were loose, this was a relatively slow method.

The straw simplifies handling considerably. Only baled straw is used, purchased from a convenient farm and loaded at its source for hauling to the apiary. It is possible to load enough on a ton truck to pack a yard of seventy-five colonies. No labor is needed other than that required to load and haul until the straw is in the yard ready to use.

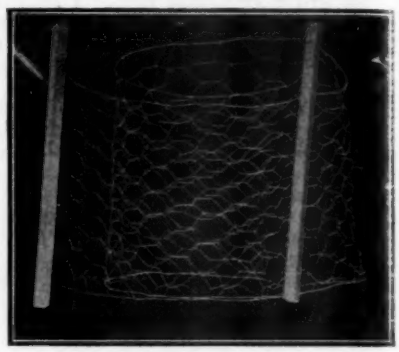
Straw Beats

As the straw is fed into the baling machine at the stack it is pressed into more or less regular bundles, which in this neighborhood are familiarly called "beats." Each beat is of a size determined by the amount of straw that can be forked into the baler between the strokes of the pressure lever. If a husky hand with the fork is feeding in the straw the result may be a good bulky beat, but as one gets tired or listens to the latest joke the amount of straw will be less to the stroke and a thin beat results.

When the bale is broken these straw beats can be separated from each other with little effort. They usually are of folded straw, that is the ordinary length straw being too long for the width of the baler, becomes folded by the pressure of the baling lever so each beat can be opened up at this fold, giving, for the average beat, a bulky "half" and a thin "half." Some of the beats will, of course, be too loose to be used to the best advantage and some of them will be so poor in straw or so full of chaff that they will not work well. These are used for stuffing, as will be described.

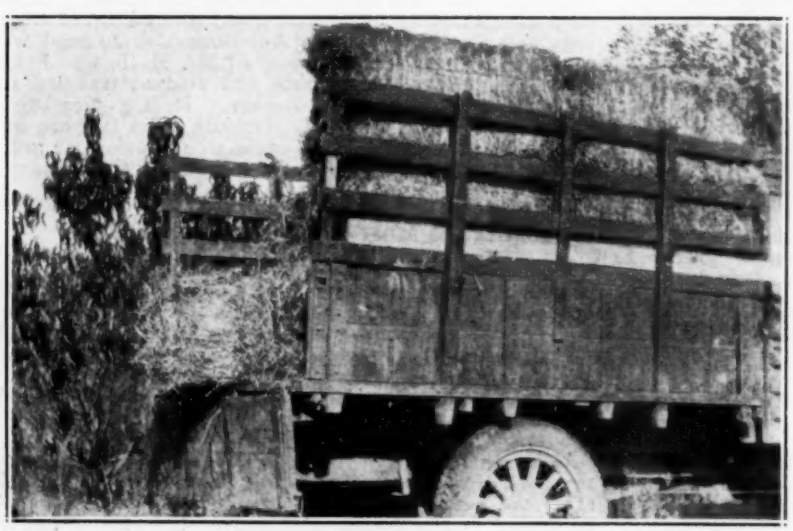
If we had to use straw as it comes from the stack many of its most attractive points as a winter packing would be lost. The fact that the straw is baled in regular beats gives it a decided advantage, in our estimation, over any other unprotected outdoor packing material. It is not only easy to load and unload in the bale, but the beats in the apiary are easily handled and placed about the hives, cutting down much of the labor cost which used to be necessary when the loose leaf pack was employed. The straw being tightly packed by the baler sheds water remarkably well and it is a surprise to most beekeepers who use it to find that it will remain practically dry even after a period of bad winter storms.

We use the summer shade boards to protect the top edges of the straw as a precaution against wetting, but even where they are not in use it is only the occasional pack which shows much moisture in the spring except where the straw rests on the ground. Of course, much of the value of this pack is dependent on the care used in putting it on the hives and for the benefit of those who wish to use it



The wire net.

A broken bale showing the beats.

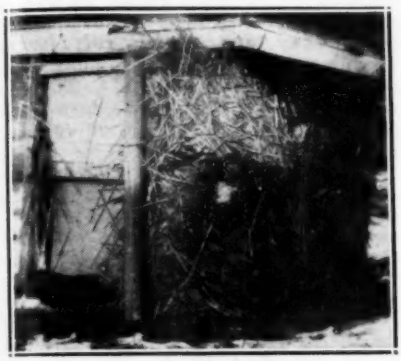


A truck load of baled straw at the apiary.

we describe the work of packing in detail.

The Packing Nets

These have been described before. They are the same as were formerly used for leaves and are made of chicken wire with double laths at the edge. Remember this is an open pack. There is no case of wood or paper for the packing, but the latter is merely held as tightly as possible about the hive with the wire net. The fronts of the hives are not entirely covered, but the net and packing are drawn around from the sides of the hive as far as possible, leaving the rest of the front exposed.



The finished pack.

This may seem objectionable, but if you will glance at the map of Illinois you will see that Hamilton is half way down the western border of the state, right where Iowa and Missouri meet. The climate is not mild in winter, but flight days usually come with sufficient regularity to give the bees a cleansing flight at least two or three times between the time of packing and spring. This allows bees to winter on their natural stores without danger. None of our fall flowers give trouble except late gathered aster. This does cause more or less dysentery and dwindling and we have to cover it in late fall with sugar syrup.

Because of the regular occurrence of flight days, we prefer to have the hive fronts exposed, especially when the hives face east or south. Then the warmth of the sun soon reaches into the hive and the bees come out to clean themselves. We take care, too, that the apiary locations are as well sheltered as possible. This is a big item in winter.

In making the wire nets, therefore, it is only necessary to cut them long enough to reach around the hive and around the front slightly. Wire cut long enough to meet in the center of the front when empty and just touch the corners of the hive will be found just about right when the packing is in place.

The best wire netting is not over an inch mesh and wide enough to come just above the tops of the hives. Our hives are the big Dadant hives, but when the two-story Langstroth hives are used, with the top hive as a food chamber for winter, it may be necessary to fasten two widths of wire together to get sufficient height to hold the packing clear to the top of them.

The up and down edges of the nets are fastened between laths, front and back, nailed together and the nails clinched. To hold the nets tightly about the packing a long baling wire is fastened at the center of one of the lath edges so it can be run across the front of the hive and fastened to the center of the other edge.

Beats placed around hive and wire net drawn forward to fasten.

How the Packing is Done

The packing is simple and quite rapid. Most of the details are shown in the pictures, but some further explanation is needed to make them entirely clear. The straw bales are dumped unceremoniously from the trucks, usually at the back of the yard. With a hay hook to drag them about, the bales are then distributed at intervals between the rows. One bale will usually pack two and one-half to three hives.

It is best to have top packing, too, and when food chambers are used, either shallow supers or the regular depth bodies, several burlaps or tar paper may be used over the frames, with the regular cover on top. Ours is a telescope cover deep enough to go over one super, and we can use the burlap underneath this cover or, if there is no super on for winter, pack the inside of the cover with leaves. Straw is too troublesome for this, as it shifts down in the clusters in the spring or is badly propolized so it is hard to get off the edges of the hives and the frame tops, when the packing is removed. The frames are not sealed by an inner cover but are covered with a straw mat or a burlap for upward absorption.

After the top is packed, two good-sized straw beats are opened and placed at either back corner of the hive, with the big "half" of the beat to the rear. A small beat is stood up at the middle of the back and two other small ones at the front edge of either side. The net is then placed around the straw, pulled in front as far as it can be pulled, and fastened together with the baling wire.

Loose straw is forced down all the

Stuffing the pack. This is important and must be well done.

holes and corners and crevices which may now show in the pack, until the entire pack is "fat" and completely filled out. This filling is especially needed where the beats meet and at the corners where the nets pass around the front edges. All the small beats and the loose ones that have been set aside are used for this purpose.

Care is used to fill out the top edge of the pack, especially and to fold the edges of the straw back under the edge of the cover so the water will not easily work down behind the pack. We like to have the nets high enough and the straw so well placed that the top of the pack is well above the top of the hive. When the shade boards are put over the tops they protect the straw also and add further to the protection which the packing gives.

The entrances are usually contracted by entrance blocks slightly nailed to the bottom boards so that only about three inches of the full length of the regular entrance is open for winter.

Unpacking and Use of Straw

Colonies packed in late October or early November are left until maple bloom before they are again examined. If at that time, the weather promises to continue warm, the packing may be removed. Otherwise it is left on longer.

The nets are unfastened, laid back of the hives on the ground, and the straw all put in them. Then they are rolled up, straw with them, the baling wires being used to hold the rolls together. The straw will later be burned or used as bedding on the farm where the apiary is located. A few rolls will be saved, perhaps, for filling smokers, as we find it excellent fuel.

Lately the straw has stood all summer piled in a corner to be opened in the fall for stuffing the fresh packs, as there is always too little of the new straw for this. About half the old straw is still usable and quite a few of the old beats are still good. The rest of it is disposed of as soon as possible after packing is finished.

The Treasures In a Drop of Honey

By Alin Caillas.

THIS is the fourth edition of a very good book in the French language. (Les Tresors d'une goutte de miel), which ought to be translated into several languages. We would surely undertake it for the English language if we were a little better acquainted with chemistry.

The author, Alin Caillas, is a graduated agricultural engineer, laureate of the French Agricultural Society and chemist for the Apiarian Syndicate.

Much of this work is unintelligible to one who is not a chemist, but there are passages which may be readily understood by anyone. We quote one of these passages, pages 56-60:

"Seeking for iron in honey is an interesting occupation, especially in the highly colored honey such as that of buckwheat or of heather, harvested in Brittany or in the Landes.

"We readily call vulgar this metal which so abundantly exists about us; yet it is more precious in another mode than gold, the 'aristocratic' metal. Independently from the industries that it sustains, iron also helps the life of both the vegetable and the animal kingdoms. Still it holds but a small amount of room there, for it was unnoticed for a long time. Plants and animals contain within their tissues infinitesimal quantities of iron, but which are as indispensable to their existence as the oxygen which surrounds them.

"This is so positive that the want of the metal prized by the God of War, is promptly shown by a decline of the organ. See that chlorotic tree, with lamentably yellowish leaves? This sickly plant is growing in a soil which appears to be excellent, but which lacks an element of major importance—iron. Give it what all its languishing leaves call for, distribute iron in its tissues and they will at once revive and exhibit strength and exuberance.

"Look at this weak working-girl, with pale, hollow cheeks, bending her body under the yellowish glare of a lamp! Like the tree just mentioned, she is also anaemic. Her tissues lack the iron without which they cannot develop freely, function in normal manner. There, also, the same remedy is required. Iron, which you have generously supplied for the growth of the tree, is also needed by those human beings who do not have enough.

"There, however, a difficulty appears. The stomachs of plants differ from those of men. While the vegetable can digest rocks, assimilate stones, man is unable to do it. His organs are more delicate, they require less vulgar food, more refined treatment. While a few nails driven into the oak just mentioned may give it back a healthy appearance, we need to use less barbarian methods. And here resides the difficulty of the problem. Under what shape can we eat iron to obtain the best results? The field is vast enough to have tempted the knowledge seekers; their ingenuity proved to be on par with the problem. While our ancestors drank 'rusty water,' that is to say rain water in which a few nails helped to make a nameless liquid, our contemporaries use the soluble iron treatment, peptonate of iron, etc. I am not pretending to pass judgment upon these remedies, but I may be permitted to aver that both time and experience have demonstrated the negative results of these potions.

"You will say, however, that the vials containing these drugs have esthetic shapes and very highly intentioned labels. Yet, the vial's contents still need to give evidences. That is because we find in this similar difficulties; our cells refuse to assimilate a menu which is not appropriate they find it too refractory; they are dainty consumers and prefer the "statu quo." This is detrimental to us for we lose flesh owing to the balking of our cellular system. What to do?

"As a theory, the question is simple; we need to modify our menu, bring it forward in a more presentable shape; in other words, we must seek the iron in a combination which will not be objectionable to our organs.

"This combination I now bring to you, and you have surely guessed where we find it—in the honey, which is an inexhaustible iron mine. Iron, so useful to plants, has filtered into the nectar, in the honey, with the help of the honeybee. It is there usually in combinations of phosphates, existing in the vegetable under a very soluble, easily digested, easily assimilated form. It supplies the dessert required by our iron-hungry organs, an excellent rebuilder of the physically and nervously worn organs.

"The presence of iron in honey is not illusionary. The most positive chemical analyses reveal it in variable proportions, which are quite interesting. From this viewpoint, the honeys which are most prized by the consumers are manifestly inferior. They usually contain but little iron, while the dark honeys, of unattractive appearance, contain much more iron.

"What shall we conclude? It is that, with honey as with people, we must seek the adaptation most desirable to the functions that we desire. If we want honey as a medicament, let us not hesitate, let us use honey from Brittany or from the Landes, deep in color, strong in taste, but with good rebuilding effects. On the other hand, if we are seeking a pleasant dessert food, with strong nutritive properties, let us eat honey from Gatinais, from the hills of Tarn, from the plains of Narbonnais; the little iron which this honey contains is sufficient to help maintain our good health."

Following the above considerations upon the usefulness of iron in honey, the author gives his findings of iron in different honeys, as follows:

White honey from central Italy 0.007 per cent
Yellow honey from Brittany 0.017 per cent
Yellow honey from Brittany 0.011 per cent
Yellow honey from Brittany 0.008 per cent
Honey from Belgium 0.024 per cent
Honey from Belgium 0.020 per cent
Tunisian honey 0.015 per cent
Honey from Landes 0.012 per cent

Some Facts About Propolis

By E. H. Babbitt.

ASIDE from some experiments in mediaeval medicine, which tried about everything with an aromatic odor, there is little about propolis in the usual reference books in the European languages beyond the statements of its uses by the bees and its source in the leaf-buds of plants.

There has been some little discussion of propolis in the beekeepers' magazines in the last few years, perhaps started by an article in "Gleanings" for February, 1920. The matter of probably the greatest interest is the statement by one correspondent of the American Bee Journal that he sells it to harness-makers for $1.00 a pound.

Before the war it was in the regular drug market in Germany, and this led two chemists to make the first extended chemical investigation of it on record. They published their results the same year, in different magazines.

(See Bohrisch, Pharmaceutische Zentralhalle, 48:929, 1907, and Dieterich-Helfenberg, Chemiker-Zeitung, 1907, with an additional short article in 1910.)

Apparently neither knew of the other's work until published, but they agree in the main as to results. They found that no two samples were exactly alike in composition, but all could be separated by the use of different solvents into two main components: a relatively large amount of a hard substance which they called "propolis resin," and a soft "propolis balsam," which held most of the aromatic properties. Most of their discussions, which are too technical for anyone not acquainted with chemical terms and practice, concern the details of their procedure as they felt the way with various solvents and processes.

Propolis is practically soluble in alcohol of suitable strength; various other solvents dissolve portions of it. The "resin" was separated from the balsam" by the use of "petrolic ether," it is difficult to separate it by solvents from the wax which is always collected with it.

Recently a Canadian chemist, beginning where the Germans left off, has carried the investigation a good step forward and, improving on their processes with different solvents, isolated some fifteen chemical components.

(See An Investigation of Canadian Propolis Gum. T. P. Gladstone Shaw. Canadian Chemistry and Metallurgy. Toronto, February, 1924.)

He says: "The products show a transition from a black, earthy solid, insoluble in all the solvents used, through hard resinous bodies, viscous pitches, varnish-like bodies, to a jelly or vaseline-like body, which is completely soluble in every solvent used."

The solids vary as to melting point from 300 degrees C or 570 degrees F, down to about that of wax, 65 degrees C. Those with the highest melting points are pure white in color; the others various shades of brown. Dr. Shaw hopes to go still further and perhaps make determinations of the actual chemical formulae of some of these bodies. Perhaps other chemists can be interested to take part in this work, and it may be that something of commercial value can ultimately be found.

Until this is done, any use made of propolis will depend chiefly on its mechanical properties. These contrast sharply with those of wax in some important particulars. Propolis is heavier than water. Its melting point varies greatly in different specimens, depending, of course, on the relative proportions of the different bodies found by Dr. Shaw, but is much higher than that of wax, generally somewhat above the boiling point of water. Its co-efficient of expansion —extent of the change in the length of a roll of it with heat or cold, for instance—is about half that of wax. It is a much better conductor of heat than wax. It becomes plastic at a lower temperature than wax; a roll of it laid on a table in a room at 70 degrees F. will flatten down; it can be molded easily with the heat of the hands; when towards the melting point it can be pulled like molasses candy. When cold, as every beekeeper knows, it is very strong and brittle. It is quite as waterproof as wax.

Of uses reported made of it, some depend on the odor when burnt, others on its plasticity and imperviousness to water. Apparently the former brought it into the market in Germany; Bohrisch reported that it was sold in pastilles for burning to give a pleasant odor in rooms, also for flavoring smoking tobacco.

Anyone familiar with the odor of the tobacco usually burned in Germany, can realize the need of something of the sort. The price quoted was around 10 marks the kilo; about what the harness-makers are said to have paid.

Readers of the American Bee Journal will also remember the request for it to use as incense in churches.

I spent some time last winter in finding out what is generally used for this purpose. Dealers in church goods told me they bought it ready for use from the wholesale druggists. I finally found one of these who would talk, and he told me what the chief ingredients are. The one which propolis most resembles seems to be gum benzoin.

In the other line, its purchase by harness-makers would seem to point to a waterproofing for leather.

Although more plastic than wax, it appears that a small percentage of it thoroughly worked into wax adds strength and stiffness. The bees use it in this way in attaching combs. It might be useful in modeling wax.

There are many possible domestic uses which, after all, are probably of more immediate interest to beekeepers than any other. It makes an ideal grafting wax. Steel tools can be easily coated with it by heating them a little above its melting point, rubbing it on and allowing them to cool. They will never rust while the coating stays on, and it hangs pretty well. Anyone can use it as well as bees to stop chinks in walls, boxes, etc., and it stays better than ordinary qualities of putty. For any kitchen utensils, such as pails, dippers, washbasins, etc., which do not have to go on the stove, it is better than any of the usual temporary materials, including beeswax, for stopping leaks. Boiling water can be dipped with a utensil mended with it.

It is possible for any beekeeper, without being at all over-fussy, to collect a good deal of propolis. Of course the comb-honey man has the best chance to get it pure, but we all scrape off more or less of it every year, and we have only to put something under to catch it.

You can spread a canvass if you have one, but then you get your soles stuck up; my plan is to invert a hive cover on the work bench and do the scraping over that; what I don't get in that way isn't worth bothering with.

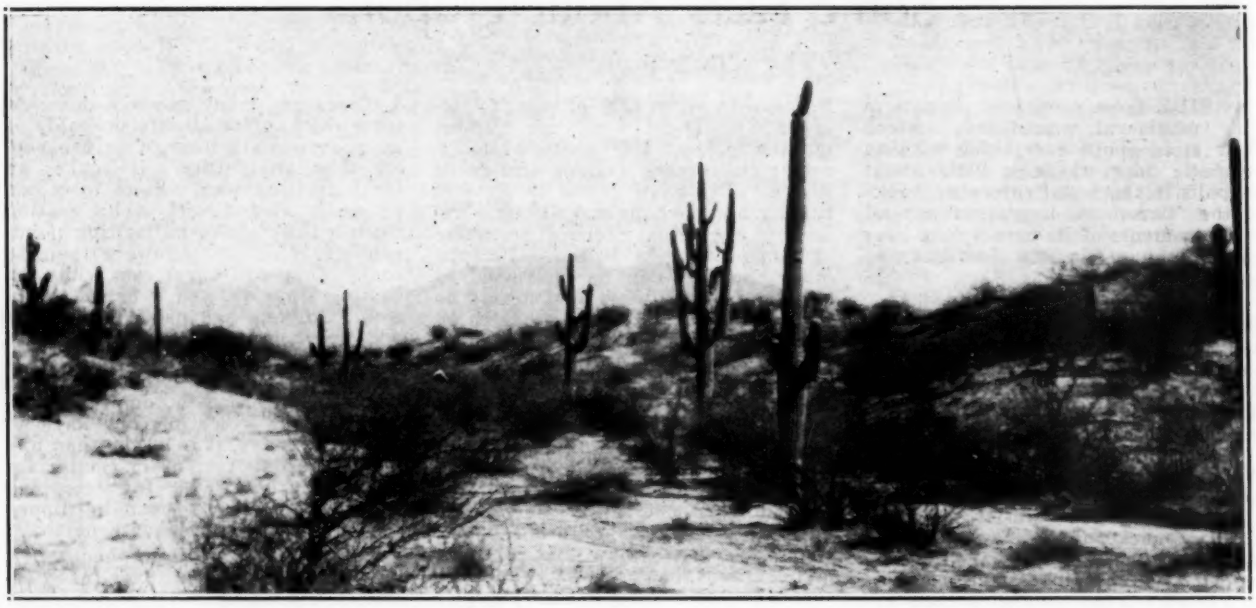
Owing to its weight, high melting point and viscosity when warm, it is difficult to separate propolis from impurities; the problem is an entirely different one from that of wax. Impurities lighter than water, mostly wood scrapings, parts of bees, and free particles of wax, can be readily removed by pulverizing the mass when cold, stirring it in plenty of cold water, and skimming before the wood scrapings have time to soak up and sink. Generally there is wax enough in the skimmings to be worth saving.

For impurities heavier than water, the only way seems to be to melt the mass and force it through a fine screen. Some can be recovered by putting the mass on screen wire over a vessel in the oven and keeping it just above the melting point as long as any drips through. Some wax, which has been attached to bits of propolis and held under water, will come with this, and can be kept clear by having water in the vessel. Dr. Shaw used superheated steam for this, and perhaps someone who has a pressure cooker can find some way to use it here.

Of course, if the propolis is to be burned, there is no need of separating out anything but the coarser impurities.

These are some of the salient points on the subject. I should be glad to communicate, through the American Bee Journal or otherwise, with anyone sufficiently interested to follow the matter further.

Connecticut.



View in Arizona desert showing the giant cactus, creosote bush and palo verda, three common sources of nectar.

Problems of the Desert Beekeeper

By Frank C. Pellett.

AFTER paying a number of visits to the semi-arid regions, from Colorado and Utah to Texas and California, during the past ten years, I have learned that most of the articles appearing in the bee magazines are written from the standpoint of the eastern beekeeper or of the man of the California valleys. The essential manipulations do not vary greatly in all that great region from New England and Eastern Canada west to Manitoba and south to Kansas. Although the time when a particular operation may be necessary varies greatly, yet most of the beekeepers follow a similar routine. In the desert region, however, conditions are so very different that an entirely new set of problems must be met and the man going there from the north or east must learn many lessons anew.

The beekeeper who operates in the irrigated valleys finds the conditions surrounding his honey flows quite similar to those in the rainbelt. With controlled moisture the time of blooming of alfalfa, sweet clover or cotton can be anticipated with some degree of confidence. The man, however, who depends upon the desert flora, finds the time of the coming of the honeyflows very uncertain, as rainfall, rather than season, is the determining factor.

Beekeepers in all that region, whether in Utah, Texas or Arizona, describe certain problems which we of the East do not often meet. Three things have impressed me especially as of great importance in those states—the conservation of bees and stores during the winter months, the building up of colony strength in anticipation of a honeyflow coming at an uncertain time, and the preservation of a supply of pollen for brood rearing at times when none is to be had from the field.

The Winter Problem

There is no part of the United States where the beekeepers do not have a serious winter problem. In the warmer portions of the Southwest, however, it is not a question of protecting the bees from cold so much as one of conservation of bees and stores at times when there is nothing to gather. I spent the months of January, February and March of this year among the beemen of Texas, New Mexico, Arizona and California. In the southern portion of all these states the winters are mild and there are few days when the bees do not fly. During the middle of the day the temperature rises high enough, as a rule, that the bees break the cluster and little honey is consumed in the generation of heat. Due to the thin atmosphere, temperatures fall rapidly after nightfall, but there is little freezing weather. The great problem, it seems to me, is to keep the bees quiet and prevent them from wearing themselves out with useless searching for nectar when there is none to be had. During January the bees were working rather freely on mistletoe in the vicinity of San Antonio, Texas, but were not getting enough of either nectar or pollen to amount to much. Such light stimulation is likely to stimulate brood rearing at an unseasonably early time and results in the consumption of an undue proportion of their stores too long in advance of a honeyflow.

H. E. Weisner, of Tucson.

In Arizona the temperature frequently rose to 85 degrees during the afternoon, making it very comfortable in the open air without a coat. Although the bees were flying freely there was nothing of importance for them to gather. An occasional creosote bush or squawbush was blooming and the leafless mistletoe also attracted them. There was just enough to be found to keep them active without a compensating return

in nectar brought to the hive. Just what the beekeeper can do to meet such conditions I don't quite know.

From Texas, New Mexico and Arizona I found the complaint that the greatest losses come in March. Several beekeepers told me the same story, that their bees apparently came through until March in good condition. With March comes the season of heavy brood rearing with much high wind. By this time most of the bees are old from the frequent winter flights and when taxed with the support of the young brood there is a heavy death rate and many colonies dwindle badly. The solution for this, of course, is plenty of young bees. How to secure the young bees at the right time without excessive brood rearing or raising bees which will wear themselves out too soon is the beekeeper's big winter problem. If brood rearing is encouraged too far ahead of the season, enormous quantities of honey will be consumed without proper returns in surplus stored.

A good windbreak or a sheltered situation pays the biggest kind of dividends, for cold winds cost the beekeeper dearly. Some of the best informed beemen in this region ventured the assertion that special protection to be applied during the spring brood rearing period would be a good investment. When asked, why not all winter, it was stated that, when kept warm by night as well as by day during the winter months, brood rearing would be unduly stimulated.

The Uncertain Flows

Outside the irrigated valleys mesquite and catclaw are the principal sources of honey. There are several other plants which, like the huajillo in Texas and the ironwood in Arizona, yield heavy crops locally, but are limited in their distribution.

The time of the honeyflows are greatly influenced by the rainfall and sometimes in wet seasons there may be two or more flows from the same source at different times. Since we have not yet been able to tell very long in advance when it will rain, the beekeeper can only guess when the flow will come. The beekeepers report a variation of as much as two months in the time of the principal flow from mesquite in different seasons.

I found a great difference in the condition of the bees in February in different locations. In some apiaries they were very weak and had little reserve stores. A few men were visited who have their bees in big hives and who left a large reserve of stores with the bees. Since this proved to be an unusually dry winter with very little nectar available, this was a wise provision. These bees were in good condition and, although at that time it looked as though there would be nothing much for them to do, they did in fact harvest a good crop. Mesquite bloomed extremely early and a sudden flow came in April with no previous supporting flow to enable the bees to build up. One of the men whose bees were in the big hives with liberal stores wrote me that he harvested the biggest crop in five years. Others in the same locality whose bees were not in equal condition found it necessary to build up their colonies on this good flow. The difference in the crop harvested in this one season will pay big returns on the investment in large hives and ample stores.

A serious problem is offered by the shortage of pollen that often comes during these long dry spells. No matter how much sugar syrup the beekeepers may feed, if there is no natural pollen available he can do but little toward building up his colonies. In 1918, in west Texas, I found many bees dying from this cause even though their owners were doing their best to save them by feeding syrup. In such a region large numbers of combs of stored pollen would be worth a big price.

There are many very good beekeepers in that region, but it takes a better beekeeper to succeed under such uncertain conditions than it does in the irrigated valleys where the regularity of the blooming of the honey plants can be depended upon, or in the humid regions where pollen is always plentiful and the time of the honeyflows varies but little from year to year. We talk much about our winter problem in the North, but to me it appears to be a simple one compared to the winter problem of the beekeeper in the arid regions where the bees fly every day. With us, when we supply our bees with ample stores of good quality, plenty of protection and large clusters of young bees we can very nearly depend upon their coming up to the spring honeyflow ready for business.

From what I have seen in the Southwest it looks like the fellow with big hives and plenty of stores in a well sheltered position is the one who is most likely to get the honey when it does come. The hive does not necessarily need to be all in one body, for two or more Langstroth bodies accomplish the same purpose when stores are available. There is always some danger, however, that the stores will be consumed in rearing brood out of season when a light flow stimulates such activity.

When the big crops do come in those dry countries, the honey comes in in a way to astonish a man who is unacquainted with the possibilities of the desert flora.

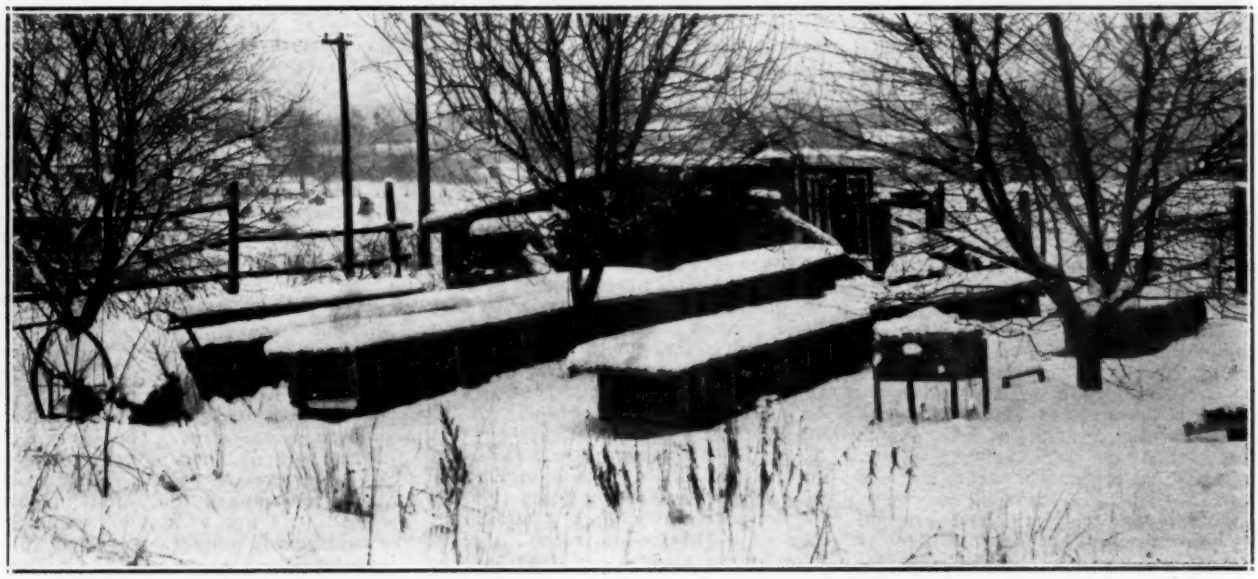
Apiary of John Van Pool in the Arizona desert.

Household Writer Urges Use of Honey

Purchasing honey by the quarter gallon, strained, from a reputable firm is urged by Mrs. Christine Frederick, authority on household efficiency, whose writings are read carefully by millions of readers of the American Weekly. This supplement to Sunday papers in the largest cities has several million circulation.

Informing her readers upon "Sugars and Syrups as Heat-Giving Foods," she says:

"What sugars have we? Let us take the oldest sugar known—honey—well recalled in Biblical times and spoken of as the perfection of excellence. Honey is what we call a "natural" or invert sugar, which is absorbed by the system without change, thus it is more digestible, causes less decay to teeth and is really far preferable to cane sugar for all children. From the cooking standpoint it has the important advantage of "keeping" any cake or food made with it—that is, a cake made of honey will stay soft and moist for weeks and months, where a cake sweetened with cane sugar will soon become dry and brittle. The most economical way to purchase honey is by the quart or gallon, strained, from a reputable firm or manager of an apiary run for commercial profit. Comb honey, by the separate pound is expensive and wasteful. Honey may be used "as is," or diluted by the housewife by the addition of a small quantity of cane syrup made by herself and added to the honey.



The Link apiary with the tar paper cases on, snug for winter.

An Indiana Plan of Leaf Packing

By Herbert J. Link.

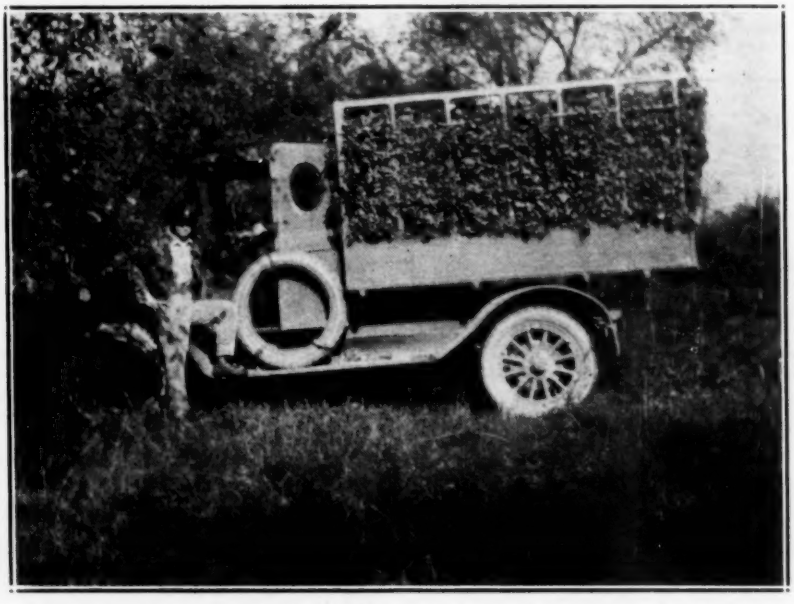
THE two greatest problems that confront the Northern beekeeper, no matter where he may be located, are disease control and successful wintering. What constitutes successful wintering? A colony has not been well wintered when only a handful of bees are left in the spring, and it takes from March to August to build up to full strength.

A good colony should cover not less than five frames in March and at least eight frames when fruit bloom comes on. It is easy to write about strong colonies, yet with a little effort any beekeeper can have strong colonies. August and September, yes, even in October, of the preceding year, you are laying the cornerstone of the next season's honey crop and this is accomplished by creating conditions favorable to meet the situation.

In order to get your colony into the "pink of condition" you must have a young, vigorous queen; not less than 30 lbs. of stores, no disease, hives constructed so bees can shift cluster, protection and packing.

The Queen

I shall devote a few short paragraphs to each of the five points.



A load of leaves packed solidly in a truck with racks to hold the load in.

In my yard I keep a constant check on our bees and know the ages of all queens. Under the present high-pressure system of beekeeping a queen cannot be depended upon after the second year. I always aim to requeen during July and August the second year. Queens introduced at this time are full of vigor and have a great laying capacity, and the least amount of nectar coming in will stimulate her to full laying capacity, packing the hive with young bees for winter. Young bees are told by their appearance. Old bees are shiny, ragged-winged and cross; young bees are fat and show no wear. This is the class of bees needed to carry a colony through. Old bees consume more honey, as they have no heat reserve, and die early in spring, just when they are needed to protect the brood. Young bees will stand the cold and live until replacements come on. The young queen will also begin laying early in the spring, filling the hive with bees so they can work on fruit bloom.

Stores

You may have put a new queen into the hive yet fail to winter, as there may not be ample stores to run the colony. Napoleon said that an army moves on its belly; so does a colony of bees, in winter, depend entirely upon its stores. A colony cannot generate heat without stores. It must have food. No colony should be put into winter quarters when brood frames do not show 2½ to 3 inches of honey and the side combs full. The latest system is to give a shallow super of honey to each colony, and I have learned by actual experience that colonies carrying the food chamber winter better and do not

The bees stay on their summer stands all the year round. This eliminates drifting.

fly out at the least indication of rise in temperature, as colonies do that are short of stores. The shallow chamber will hold enough honey to tide a colony through the fruit bloom and up to the alsike flow.

Stores must be of good quality, as the bees often remain confined in their hives as long as three months. You know how disagreeable a stomach ache is, so bear in mind that poor food will cause agony to the bees and dysentery, which is about the worst thing that can happen to a colony during winter.

Foulbrood

There should be no American foulbrood in the apiary during winter. A diseased colony cannot keep up the normal egg and brood production and the chance for wintering is poor. It is not economy to try to winter either diseased or weak colonies. Colonies not full strength should be united with other colonies, but before uniting be sure that the weakness is not caused by disease.

Strong colonies with American foulbrood may be packed for winter in a hospital yard, yet I never recommend this, as it may infect the entire neighborhood. In the best managed apiary there will be a winter loss and, if any colony should die, the first warm spring day when no nectar is coming in robbing will take place. Both dead and weak colonies will be robbed, and if there is disease it will be spread through the entire yard. The mildest form of disease is an expensive thing.

The Hive

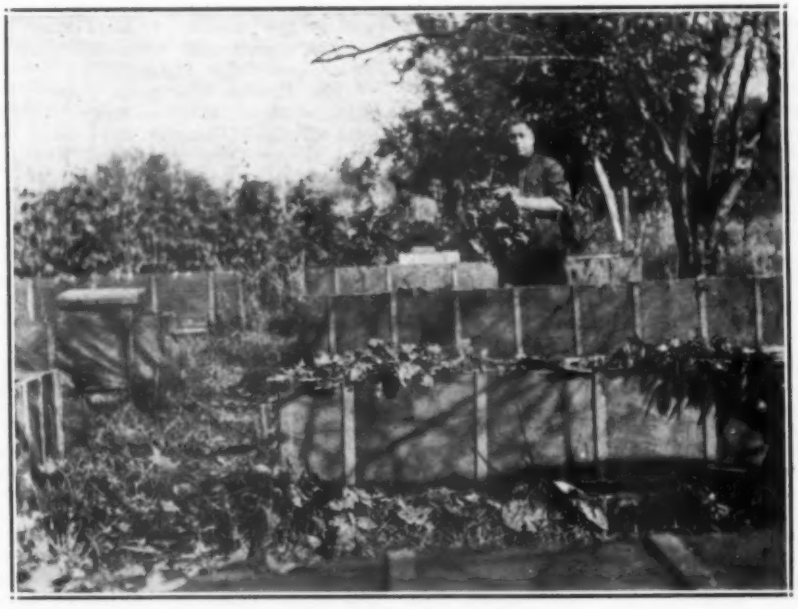
Hive arrangement and construction have a great deal to do with wintering. Often you hear beekeepers say: "I lost my bees. I put in a young queen and the hive was full of honey and the cells are full of dead bees. Now what caused that?" In most cases that is because the cluster could not manipulate itself to get to the stores. Thousands of beekeepers nail the tin rabbets of the hive in wrong, cutting the communication from top to bottom. Others lay a piece of burlap over the cluster, the bees seal it to the frames and make shifting over the top impossible. The results are that the colony, during zero and sub-zero weather, being semi-dormant when its food supply is getting short, cannot shift the cluster over the frames but must go under, and the temperature being lower they chill and die or starve to death.

As I have had experience in this, I decided that a good way to keep space over the cluster is to use a queen excluder or the inner cover. Each of these will give ample clearing space so that the cluster can shift and also cluster on the inner cover. I remove the bee escape from inner cover and leave the hole open and place a piece of burlap over the cover and leaves on top of this, and the regular cover on the leaves.

This gives bees free circulation over top of frames, circulation of air, and avoids condensation of moisture over the cluster. Moisture is hard on bees.

Packing

Now the colonies are ready for packing. Some beekeepers do not pack at all; others might just as well not pack; others spend too much money and get no returns. Yet it is an easy matter to pack bees and there are many ways to do it. I have tried quadruple cases, individual cases, double-walled hives, wrapping in tar paper, and the Dadant system. After working on all plans I



H. J. Link filling the cases.

decided that the Dadant system of packing with leaves was as good as any. Leaves are cheap, and are always abundantly available in the neighborhood, so I have for some time used them for packing, with gratifying results.

Beekeeping is by no means a side line with me but, as I am regularly employed in a bank, it is necessary for me to use short cuts wherever possible in managing the bee yards. Starting eighteen years ago with nine colonies, the number has gradually been increased until now, each year there are about 450 colonies which are doubled back or united in September to about 250 colonies for winter. I find it cheaper to buy bees than to winter them all. Each spring nuclei and three-pound packages are purchased to bring up the number again, and so far these colonies have given good accounts of themselves.

For winter packing, as I have stated, I find the wooden cases too heavy; also they take up too much room and I find it too costly to equip a yard with them. My present cases are of wood and tar paper. Two frames ten feet long and twenty inches high form the front and back of case. Slats up and down across the length of these frames serve as reinforcements and help to protect the paper which is tacked to the back of the frames, full size. The end frames are of the same construction. When the four frames are fastened together they form a case about the hives which is then filled with leaves. A light cover is made for the top and tunnels for the hive entrances.

Each case when assembled will take five ten-frame Langstroth colonies and allow for four inches of packing at the front and back and about ten inches on top. The hive stands are built so that six inches of leaves can be forced underneath. This will keep bottom warm and keep moisture from condensing in hive. As I now winter, the bees are kept in the same position all through the year and all possibility of drifting by fall and spring shifts is avoided.

I have used sawdust and planer shavings for packing but much prefer leaves, as they are easier to handle and the city gives me all I want of them just for hauling them away. If water drives into the cases, the leaves only dampen on the top, but the shavings saturate and a chunk of ice forms inside the case.

It is quick work to pack this way. I can usually pack an entire case in about 15 minutes, although my helper takes longer than this. Packing is finished in October and the cases stay on until fruit bloom. Then they are taken off and piled in flat and covered with tar paper for protection.

These cases can be made more permanent by using roofing paper. and then they will last a lifetime. The great advantage in this style case is that one person can handle them with ease, as they are very light in weight, yet give plenty of space to pack in. My experience has been that you can pack bees too warm, and as a result you have restless colonies that consume a great amount of honey and try to get out when the temperature goes up and does not cool quickly enough to give the bees a chance to meet the condition. The leaves are non-conductors of heat and do not draw up water like other packing; and in case you want to look at a colony you do not have sawdust and shavings running into the hive. Leaves are easily handled and in the spring you can burn them, leaving no bulky, back-breaking sawdust cases to handle. Colonies seem to winter better in the leaf-packed cases, as the condensation of moisture is at a minimum, and I find that it is moisture that hurts the bees rather than the cold. Leaves give enough protection so that colonies are comfortable at all times, and as my winter loss has been only 5 per cent for ten years, I think that I am not far out of line on the wintering problem.

An International Meeting

By J. W. Winson.

A beekeepers' field day, carried on within sight of the international boundary, British Columbia, on Saturday, June 13, was unique in its composition if not in its object.

The Government of British Columbia has established demonstration apiaries in various parts of the Province. These consist of a number of hives set apart by the owner to be under the management of the Government apiarists.

The owner must provide all equipment advised by the inspector and carry out his instructions having the colonies always accessible to the inspector and anyone whom he may bring for a "demonstration."

These apiaries form a convenient meeting place for demonstrative and experimental work, and one is situated at the home of A. Finlay, Assistant Provincial Apiarist, Huntingdon, near the border.

The British Columbia Honey Producers' Association arranged to have one of their summer field days here and the proximity of the line suggested international intercourse. Invitations were sent to the Skagit County Beekeepers' Association and the organization covering Whatcom County, Washington, the result being that over twenty cars crossed the border, fully half the two hundred and more bee folk present being Americans.

The forenoon was occupied in examining a few hives to note British Columbia methods of preparing for the honeyflow, new appliances for equipment, wherein Mr. Finlay has an ingenious hand, and a new extractor from England for shallow frames. In this invention the frames are set radially from the center. Lack of enough suitable frames prevented justice being done to the new appliance. The association's microscope was at hand to show the different diseases of bees and their anatomy. Luncheon was served as fast as the B. C. ladies, under Mrs. Finlay's guidance could handle it; the honey producers providing the solid provender, their ladies bringing cakes. Special mention was made in the meeting that these were honey-sweetened.

A series of addresses followed the luncheon, all having in view the desirability of greater publicity for honey at state fairs and exhibitions.

Mr. Alex. Keir gave an illustrated address on preparing comb honey for the show. The preparation of extracted honey was described lucidly by Mrs. W. H. Turnbull, and Mr. E. R. Freeman gave expert advice on the treatment of beeswax.

Following these talks by prize winners in British Columbia's Provincial Exhibition, Mr. D. E. McKenzie, its manager, spoke on the educational value of fairs and exhibitions and their splendid opportunity for producers to reach the public.

Mr. Geo. W. York came up from Seattle, arriving just in time to address the crowd among which he found "old-timers" almost as venerable as himself in beekeeping experience.

The international audience was equably charmed by his reminiscences of heroes of beedom, beginning with Father Langstroth and naming most of the men who are recognized as leaders in the advancement of bee culture.

The day was too damp for successful hive work, but more time was given to addresses and intercourse which made the day memorable for beekeeping on the northern Pacific Coast.

Baldensperger

P. J. Baldensperger is writing very interesting articles in different European publications concerning his trip to America the past season, at the time of the International Congress of Beekeepers at Quebec. Baldensperger is a very pleasing writer, because he does not follow the beaten paths, but expresses ideas of his own, even with the risk of being contradicted, as he was when he asserted that bees were unknown in Palestine before the time of Solomon. After all, it is the men who dare differ in opinion from the beaten path of more or less correct knowledge who are likely to bring about some progress.

The magazine which he publishes, at Nice, as president of the Society of Beekeepers of Alpes Maritimes, is always replete with lively statements.

Honey Oatmeal Biscuits

One-fourth pound of fine oatmeal, one-fourth pound of flour, 2 ounces of honey, 2 ounces of butter (melted), 1 egg, a little milk. Mix the oatmeal and melted butter together, add the beaten egg, knead lightly on a floured board, roll out thinly, stamp into rounds. Lay on a greased tin and bake fifteen minutes in a moderate oven.

Personal Recollections of the Editor

Importation of Foreign Bees

SINCE I began writing these recollections of old days, enquiries have been made of me concerning the different races imported at different times into this country.

When we began beekeeping, in 1864, the only foreign bees in existence in the United States, outside of the common black bee, were Italian. The first importations were, in 1859, from Germany, for the Germans had already succeeded in bringing bees across the Alps and they were breeding Italian bees in several districts. But in 1860, S. B. Parsons imported a number of colonies from Italy. Then queens were imported again from Germany by Mr. Langstroth, in 1863-64.

When we began breeding Italians there were already a number of dealers in Italian bees and they had light-colored bees in every case. Ours were from the apiary of A. Gray, of Reilly, Ohio. This man did not stay long in the queen business. But he did have bright bees of good quality.

In 1867, Adam Grimm, of Wisconsin went to Germany, his native country, then to Italy. He bought a hundred colonies from Professor A. Mona, who lived in the Italian part of Switzerland, south of the Alps. The Alps are a wonderful barrier, separating Switzerland from neighboring regions, especially on the south. However, some cantons south of the Alps have Swiss nationality, even though their speech, their customs, their lands, their climate, their bees, are Italian. Little Switzerland is the greatest country on earth—the freest, not excepting our United States, and yet they speak three distinct languages—French, German and Italian.

But I am straying from my subject. Well, after Adam Grimm had made his importation, my father concluded to try his hand at it. He secured the address of an Italian-Swiss breeder, Dr. Blumhoff, of Biasca, Canton of Tessin, Italian Switzerland, and I have before my eyes a letter from him, dated August 21, 1868, in which he mentioned a shipment of these queens that he had made to us the previous spring, all of which had arrived in good shape. He had written an article on the bees of Italy, which was inserted in the American Bee Journal for November, 1868. Dr. Blumhoff was a careful shipper, much more successful than Mona, who had a greater reputation, but did poor work in packing bees for shipment, as we found to our loss, a little later.

Unluckily, Dr. Blumhoff died, and that ended our successful importations until 1872, when father made a contract with Mrs. Ellen Tupper, a leading bee woman of Iowa, to make a trip to Italy and import bees. She furnished the funds and he did the traveling. Unfortunately, he met an obstacle which he had not foreseen—the moth. Moths are plentiful and dangerous to bees and combs in countries where they never have to withstand the rigors of winter. Colonies with good queens and plenty of bees have nothing to fear; but little boxes of combs such as were used for the shipments of queens are subject to the ravages of moths unless the combs are kept within strong colonies until they are used. When he arrived from Italy, in September, 1872, with 500 queens, only about 60 were immune from the moths. The great trouble had been that, as there were no queen breeders in Italy, the queens had to be bought from contadini (peasants) by driving the bees of colonies and taking the queen with as many bees as wanted. Some queens were thus kept 30 to 60 days before they had a sufficient number. Evidently those that arrived safely were those that were put up last.

This terrible failure had one good result. It taught him the requirements for importing. The only question was to find a man, over there, who would put into practice the knowledge gained. A beekeeper, bee writer and dealer in bees and implements, by the name of Sartori, of Milan, was thought to be capable of doing the work. But he soon proved his lack of judgment, for he put up bees with so large an amount of honey that the boxes leaked honey all the way to America and, of course, all the bees were dead, actually sticky with honey, on arrival. He also insisted in putting into each box a sponge filled with water. Bees need no water when traveling, except if they have brood to feed, or granulated honey or sugar to dissolve, and the amount of water necessary is insignificant. It was not until 1874 that we found a very capable shipper, Giuseppe Fiorini, of Monselice, near Venice. This man put the bees in boxes with two combs about 3 by 4 inches, one comb dry, the other with sealed honey; the entire lot well fastened in the little frames by the bees. About 50 bees with each queen, all bees that had already had one flight, and were therefore field bees, were sent. Boxes of 22 queens were arranged in a pyramid shape, protected with a tin shield, with a cushion at the bottom and a handle at the top, so that they were neither tumbled over nor roughly handled.

They arrived after 16 to 22 days with next to no loss; in some cases not a single bee dead. We did a thriving business for three or four years, until others began to succeed, for imported queens readily sold at $10 each. They were all inserted in full colonies, on arrival at Hamilton and taken from those full colonies as soon as well rested. Often we would take out and send queens received two weeks earlier, when the next shipment arrived and thus replace the removed queen by a new one. We imported some 500 each year. This was in 1874-1880.

This gave us also the advantage of getting first-class stock in our hives. Those bees, of leather color, peaceable but active, were far ahead of anything we had had thus far.

About that time they began to talk about Carniolan bees and Cyprian bees. We wrote to Fiorini, asking him whether he could send us queens from Carniola. That country is only about 100 miles from Venice, separated from Italy by snow-capped mountains, in most of its frontier, as in Switzerland. Fiorini made a trip to Carniola and sent us 10 queens. They were fine gray-colored bees, but without a trace of yellow. When the workers of those bees began to hatch and we found that they differed but very little from the common bee, except in the lighter color of their hair and their greater gentleness, we did away with them, for we did not want any matings of their drones with our Italian queens. We found out, however, that they were good honey gatherers, good to winter and prolific. But they were great swarmers. Frank Benton explained that propensity to swarm by stating that they are kept in diminutive hives, in Carniola.

At that time, Benton and D. A. Jones a Canadian, were traveling through Europe to buy the most interesting races. They recommended the Cyprian and the Syrian bees. We employed Fiorini to get us some Cyprians and he did get some. When he sent them to us, we expressed a doubt of their being pure, as they did not show plainly in every case the copper-colored shield on the back of the thorax, which was said to be the distinctive sign of the pure Cyprian. In reply he sent us some 20 letters, showing that he had received bees from Cyprus.

Well, the Cyprians proved to be infernal in their temper; so much so that, in my exasperation, I killed two colonies of them with brimstone, the only bees that I ever killed willingly. It was then that I learned that drones could stand more suffering than workers, for the dose of brimstone that would kill every worker would leave most of the drones alive. But no one needs offer Cyprian bees to me. I remember one instance when they stung everybody around, at an outapiary, also the dog, the chickens, the ducks, and people passing along the road some 300 feet away. Perhaps I was to blame for this; but give me pure Italians, for if I make a mistake they will be easily pacified anyhow. I have no time to fool with the copper-colored bees of Cyprus. By the way, "Cyprus" is a name derived from the Greek "Kupris," the surname of Venus; but it also resembles the Latin word "Cuprum," which means "copper." The name applies well to the bees, for they are both beautiful and copper-colored.

Before I finish this subject, I might mention other races which have been praised. The Holy Land

or Syrian bees have never proved satisfactory. The Banat bees have been praised. Very few people know where the Banat is located. It is a district of South Hungary, now divided by the results of the World War between Hungary, Roumania and Jugoslavia. It is in the valley of the Danube, north of this river, and crossed by two rivers, the Maros and the Theiss (Tizza). It is a good country for bees and silk worms, and that is perhaps the reason why its bees have been praised; but the bees of Banat are not any more likely to be of a special breed than those of Iowa or Missouri, for it is not separated from its neighboring countries by anything that bees cannot cross, while both Italy and Carniola are separated from the rest of the world, with very exceptional instances, by barriers of snow-capped mountains. So we need not take the recommendations of Banat bees seriously.

As to the "Adel" bees, that is just a fancy name given by some breeder, years ago, to a selection made by himself. I have been unable to find or remember who it was. African bees or Punics and Egyptian bees are not desirable.

There is still another race which has been praised and is good. It is the Caucasian, of that part of the Caucasus located south of the main range, but not at the extreme south, for there is a race of bees, the bees of Lenkoran, which are yellow and reported very cross. The Caucasian bees of Tiflis are very similar to the Carniolans, in color, and will therefore show but little in the hybridizing with the common bees. But they are a very prolific and gentle race. We received some at different times.

Well, we carried on the importations and the breeding of queens for sale, for a number of years, till our work of honey producing and our comb foundation work occupied too much of our time to leave room for queen breeding.

It was fun to sell comb foundation to beekeepers, after our arduous experiences in selling queens, both home-bred and imported. I often pity the queen breeders, for they are slaves to the weather, the honey crop, the ups and downs of the apiary, and can never tell how soon they may have good queens to deliver. Then they must have yellow, active prolific queens and the bees of those queens must be high grade producers of honey.

In importing bees, the trouble was still greater. The American beekeeper bases his opinion of the purity of Italian bees upon the yellow color. The yellower the bees, the purer they are thought to be. Well, bees in Italy have the three yellow rings, but they never until lately tried to produce golden bees over there. The man who bought imported queens wanted them yellower than those he had, but the imported bees were usually less yellow than the home-bred. From that cause came complaints and recriminations. Not everybody complained, but there were too many to suit me, for I could not sleep at night if I could not keep my neighbors, my friends and my customers in good humor. But, of course, we made some very good friends, even with the sale of what everybody knows as the "leather-colored" Italians. They surely know how to breed and bring in the honey.

Some of my friends think that I must have a wonderful memory to tell all that I am giving in these reminiscences. But I don't remember all of it. I find it in the old letters. We have, filed away for reference, letters dating back to the Seventies, over fifty years. I took the pains of sorting them out and I have a lot of correspondence from many old beekeepers which probably would make interesting reading for some of my friends. These letters complete what I remember and sometimes correct some erroneous recollections. They are a source of great pleasure to me.

Wintering Bees In the Southwest

By H. E. Weisner.

IT is often said that there is no wintering problem confronting the beekeeper of the Southwest, and so far as loss of colonies is concerned it is true, excepting perhaps a few locations in extremely high altitudes where winters are severe, for generally a handful of bees with a fair queen and sufficient stores will survive our winters seemingly as well as a strong colony, but having all or even a larger proportion of our colonies in readiness for the honey flow, when it comes on, is an entirely different matter, and one which is the subject of much thought and not a little experiment among progressive honey producers.

It is the general practice throughout this vast section to keep all surplus combs with the bees the year round, and as most beekeepers have only two 10-frame bodies, or their equivalent, per colony, it may not be a bad practice in itself, but it is my contention that very few of us have sufficient surplus combs, and I am not the only transplanted beekeeper in the arid section who refuses to become reconciled to the general practice of trying to keep up with the bees during a honeyflow by extracting as fast as they store it. In the first place, I do not consider such honey properly ripened, and therefore it will not be at its best; and again, I fear such fermenting as described by Mr. Earl Peterson, on page 314, July American Bee Journal. It is my belief that much of the trouble due to the fermentation of honey in Arizona could be prevented by the use of more supers and allowing the crop to remain in the care of the bees a little longer, and by not extracting during wet weather.

It is true that those honey producers who make a regular practice of moving their apiaries between honeyflows might find that more than two bodies per colony would "cramp their style," but for the rest of us more supers would be a better investment than more colonies. What to do with all these surplus combs during the time they are not needed is the problem that keeps many beekeepers from having as many as good beekeeping calls for, for if kept with the bees the year round they are not only in the way most of the time but give rise to complications that are a distinct disadvantage, such as honey being scattered all through the combs and not very much in any one place, all of it soon candying hard and becoming a nuisance in extracting time, while if taken off and stored they are not safe from the waxmoth at any time unless carefully treated and made inaccessible to the moths.

One large producer of my acquaintance places all the surplus combs beneath the brood chamber at the approach of winter, thereby enabling the colony to better conserve its warmth and yet take care of the combs, but such manipulations on a large scale at such a time cause serious robbing.

Mr. J. B. Stuyvesant, of Alpine, Calif., gives in the Western Honey Bee of November, 1924, a method of dealing with the problem of what to do with the supers that have honey scattered all through the combs, but not enough to be worth extracting, and as the writer has given it a trial with satisfactory results, I will repeat it here:

"I simply take common tar or asphalt building paper (not roofing, but sheathing or lining paper), such as may be purchased for from $1.50 to $2.25 per roll of 500 square feet, and cut it into pieces eighteen or eighteen and one-half inches long by the width of the hive body.

"The bees do not gnaw this paper away as they do the common paper.

"Place a piece of this on top of the frames of the brood nest, being careful that it is up tight against the back end of the hive body or super. Do the same with each super. This will cover each body completely from the rear end to within about one-half inch of the front end just over the forward end bars of the frames and makes all nice and snug by keeping the warm air down. The space between the front end bars and front end of the hive allows the bees to go to every frame in the supers and get anything they want, also to fight moths. If entrances are properly closed down to about one or two inches and all ventilation holes are closed or kept at the front end of the hive there will be no chance for drafts from front to back of hive to carry off the precious warmth.

"With the regular Hoffman end bars, which I much prefer for brood nests, the front end bars serve as a very good end wall and all is cozy below, no matter how many supers may be above."

As to my surplus supers of dry combs, I prefer to store them by placing them in piles, sealing the cracks with soft clay and fumigating them, as described in a former article, for then they are safe and out of the way, yet quickly available should they be needed.

The methods tried by different beekeepers in endeavoring to build up colonies to a good working strength for the opening of the honey flow may seem strange to northern beekeepers, but there is much to commend them.

One man is trying out the scheme of carrying two queens per hive over winter by rearing an extra queen in the upper story during the late summer and then at the close of the season, by placing together two woodbound excluders, top to top, so as to form a considerable space into which the queens cannot enter; inserting them between the two brood nests he contrives to have two queens per colony at work during the building-up period, and at at the approach of the honey flow he removes one queen and consolidates the brood nest. He claims that the results justify the extra work.

Some others are trying a similar scheme, but instead of allowing the bees of two colonies to intermingle, they place a moving-screen between the upper and lower colonies and unite the two just at the beginning of the honey flow. Although I have not tried either method for the sake of getting up a larger working force, I always endeavor to have at least a few nuclei or colonies perched atop hives about my apiaries for the sake of the queens that are frequently needed on short notice. It is so easy and convenient to take one of these small colonies to some colony that is in need of a queen and, by placing a sheet of paper over the frames of the queenless one and setting the other on top, to introduce a queen, that it has come to be one of the essentials in my operations. Even colonies of laying workers are readily put aright by this method.

The colony from the top of which the nucleus was removed has the cover set over enough to permit the returning bees from the latter to enter, and I have never known any fighting to occur from this.

Some beekeepers in this section do not contract hive entrances during the winter, and although few if any colonies may be lost on this account it must necessarily be considerable of a drain upon their vitality, especially where they are exposed to winds, and during the early part of the day, during cool weather, it is a very common sight to see robbers trying to enter hives while the occupants are still clustered, so with full width entrances one would quite naturally conclude that considerable mischief were done. Then there is the matter of the tiny mice that do so much damage to the combs when they can enter the hives, and being able to get through a very small opening, the usual contracted entrance is not proof against them; so to make sure that none get into my hives I have for several winters been placing small pieces of heavy wire screen over the entrances and keeping them in place by standing a nail against them and driving it into the bottom board far enough to make it rigid. The size of the mesh of this screen is three per inch, and effectively excludes the mice, but permits free passage of the bees.

Where bees can fly practically every day in the year, as they can here, the matter of quality of stores is, of course, of little concern, but not so the quantity, for they use a surprising amount, especially after brood has begun to develop, which may be any time after the fore part of January, and more than once I have found a colony starved in February that had been fairly heavy in the fall; heavy brood rearing in midwinter was the cause.

Cottonwood, which is our earliest source of nectar and pollen, often begins to yield in January, and as most apiaries are within reach of more or less of these trees, heavy brood rearing begins generally much too early for the ultimate good of the colonies, for it often happens that this unseasonable brood rearing exhausts the stores long before any dependable source of nectar is available, making it necessary to feed heavily. In the irrigated sections, however, this disadvantage is less noticeable.

Some beekeepers in this state have considered the experiment of confining colonies in a cool, dark place during the winter, much as in cellar wintering in the North, and keeping them cool by the use of ice, hoping thereby to reduce the amount of stores used and to prevent too early brood rearing, but I have read that such a scheme has been tried in a much cooler climate than this and that it was found very difficult to keep the bees quiet, so there would seem to be little hope of its success here. It might also be found that the bees would suffer from lack of water if so confined, for practically all our honey candies before winter and the bees need a great deal of water under such conditions. It is probable that in apiaries that are situated far from a water supply this disadvantage greatly reduces the efficiency, so it is important that the bees always have all the water they need and do not have to go very far to get it.

Here, as elsewhere, the most common mistake in the wintering of bees is the failure to make sure that they have **plenty of stores.**

Arizona.

Opinion of Louisiana State Association of Shipping Bees On Comb

The Louisiana State Beekeepers' Association met at the State University, at Baton Rouge, on August 4. The most important discussion was relative to the shipping of bees on combs. We in Louisiana cannot understand why some states will not permit us to ship bees on combs, especially when we have a health certificate to show that our bees are free from any bee disease. Our bees are inspected twice during the season by competent and experienced men and Louisiana is free from American foulbrood. If states that are quarantined against bees on combs cannot accept our health certificate we consider that they do not respect our laws or regulations.

It is not the Southern States that infect the North with disease. Disease is scattered by other things besides packages of bees. Why is it that tainted honey can be moved from one state to another without a health certificate? Disease is certainly spread by interstate movements of honey. Ships enter our port at New Orleans and unload honey with containers leaking. Our bees eat this honey and we know it comes from foulbrood sections.

We Southern beekeepers, especially in Louisiana and Texas, have decided to fight embargoes on combs. Watch our smoke.

We believe the folks who place such embargoes are office people who have little practical knowledge of beekeeping. The customers suffer from these rules as much as we shippers. Bees shipped on combs are in all ways superior to the combless packages. Honey in the comb is a more natural food, the bees are easy to transfer to the hive, the queen is already introduced and laying, and no feeding is needed on arrival. Also the frame of brood is equal to three-fourths of a pound of young bees.

We feel in Louisiana that the barring of such shipments knocks out half of our business. Those of us who have made beekeeping our life work feel that we may have to go out of business if forced to ship only in combless packages.

Our American Express Company Claim Agent tells us that claims have been very much reduced since we began shipping bees on combs. It is also possible for the shipper to prepare four or five times as many packages on combs in a day's work than of combless packages.

Many northern beekeepers send in large orders for bees on combs, right from quarantined states, showing that they are not aware of these laws. They well know that the bees on combs reach them in better condition. We, of course, have to return their orders.

This discussion was the most important at the meeting. It was also decided that, since Louisiana is the only state not teaching bee culture, the Association go on record as in favor of establishing this work.

The following officers were chosen: Jes Dalton, President; Oscar Mayeaux, Vice-President; F. A. Swann, County Agent, Secretary and Treasurer.

C. A. Mayeaux,
Louisiana.

Wintering Bees In Manitoba

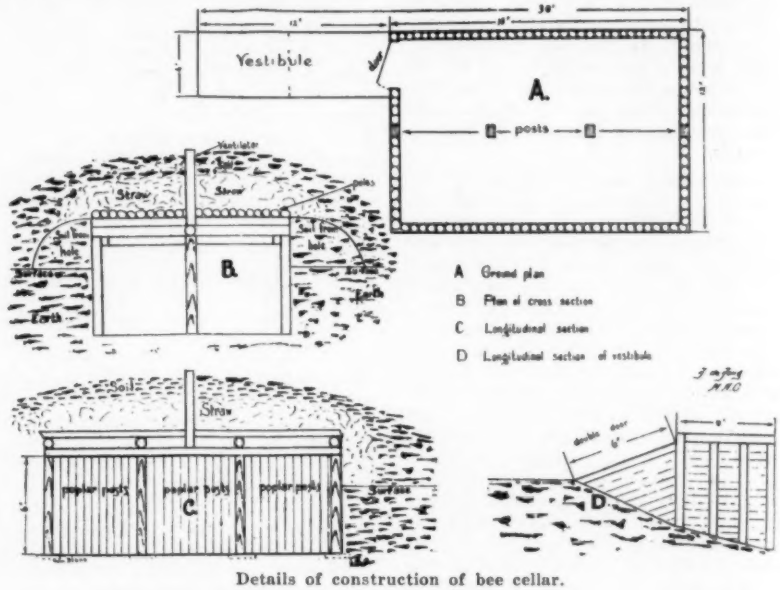
By A. V. Mitchener, Manitoba Agricultural College, Winnipeg, Manitoba

BRING out your map and have a look at the Province of Manitoba, Canada. You will see that our southern boundary is North Dakota's northern limit. Our winter conditions are similar to those which exist in the northern states as well as to those of a large part of central Canada. In a general way winter in Manitoba extends over a five months' period, from the middle of November to the middle of April, as far as bees are concerned. During this time the ground is usually covered with snow and it is unusual to have many soft snaps in the weather warm enough for the bees to take a flight. There is, therefore, no particular reason why bees should be wintered outside where they can take cleansing flights.

In wintering of bees under our conditions, at least three things should be taken into consideration. Colonies should be full of young bees at the beginning of the winter season. By young bees we mean bees which have not become worn out in the fields. Requeening before the end of the honey flow will help fill the hives with young bees for winter. In the second place, the colonies should have plenty of good stores for fall, winter and spring use. Plenty of stores is not good enough. They must have plenty of **good** stores. A ten-frame Langstroth hive should weigh about 75 pounds when placed in winter quarters. Beware of honeydew in the hives. At Manitoba Agricultural College we always feed each colony around the first week in October at least 20 pounds of sugar syrup made from two parts of granulated sugar to one part of water, either by weight or volume. This is to make certain that the bees have plenty of entirely digestible food available during the five months they are confined to the hive. In the third place the bees must have the right kind of protection. By far the great majority of beekeepers in Manitoba winter their bees in cellars, although a few of them have wintered in well insulated packing cases. We are particularly interested here in presenting the method of cellar wintering. On the average, bees are taken into the cellar around the middle of November and taken out to their summer stands about the middle of April. The tabulation below will give definite dates for the past three winters at Manitoba Agricultural College, Winnipeg. Figures are also shown indicating the amount of stores consumed during the time the bees were confined to the cellar.

Certain conditions are necessary for successful cellar wintering. We try to maintain an even temperature in the cellar throughout the winter. In our latitude a temperature of 40 degrees F. seems best. If the temperature goes much higher than this the bees come out of the front of the hive. If the temperature goes a little lower than this at times, no harm will be done. A steady temperature, though, is very desirable. The cellar should be absolutely dark and quiet. Ventilation should be provided for in the cellar, although it does seem that this feature is sometimes over-emphasized, especially in outdoor cellars. The cellar should be dry.

It is possible to obtain these desirable conditions often in the cellar under the house. Any cellar which will carry vegetables successfully through the winter should prove to be a good cellar for wintering bees. Perhaps the most satisfactory cellar though, is one which is especially prepared for the bees. In selecting a site for the cellar one should be very careful to select ground from which the early snow water will drain away readily. If water gets into the cellar in the spring it is surface water as the frost is not all out of the ground by the time the bees are taken out of the cellar. The southern slope of a side hill is a good location. Dig back into the hill and support the sides and roof with poles. At Manitoba Agricultural College three years ago we built a cheap cellar, one which cost in actual cash only a few dollars. Any beekeeper can easily construct a similar one. We were not able to select the side of a hill, but dug down into the ground about three feet. If we were building one again we would go deeper, five feet at least. We have an entrance to the cellar on the south. This is rather important since there should be no openings on the north and west of the cellar. Our prevailing winter winds come from the northwest. The walls are made of poles standing on end. The top is also covered with poles. Along the middle of the cellar are four large supporting posts. For the walls and top we used poplar poles because they were most readily obtained. Old railroad ties should do even better. Over the top and at the parts of the sides and ends of the cellar which were exposed above ground a thick covering of straw two or three feet deep was placed. Earth was heaped over this. It is a good plan to have a vestibule entrance to the cellar to prevent the frost from getting in. Accompanying plans will show this| One ventilator was provided in the center of the cellar and it seemed sufficient. In fact we



Details of construction of bee cellar.

Winter Season	No. Colonies under Observation	Date Confined	Date Removed	No. Days in Cellar	Minimum Stores Consumed by 1 Colony	Maximum Stores Consumed by 1 Colony	Average Stores Consumed per Colony
1922-1923	29	Nov. 20	April 23	154	7.5 lbs.	18 lbs	11.13 lbs
1923-1924	48	Nov. 21	Apr. 19	150	6. lbs.	16 lbs.	11.10 lbs.
1924-1925	35	Nov. 5	Apr. 9	155	6. lbs.	14 lbs.	11.70 lbs.

Table showing results in cellar wintering for past three years.

plugged it up for weeks at a time, as it seemed to let in too much cold air.

It is a good plan to raise the earthen floor of the cellar about an inch or so along the walls. The bottom boards of hives piled with their backs to the wall, then slope gently toward the entrances. This will allow any moisture which may collect in the hive to run out of the front. We pile them four deep all along the walls. The covers are left on and the entrances are left wide open. We use sealofelt, which is a compressed mat of flax straw, underneath each cover over the top of the frames in the brood chamber. If mice are present in the cellar a good cat or traps will clear them out. A maximum and minimum thermometer in the cellar during the winter will be found to be very useful. Southern beekeepers will not find this concluding suggestion of much value, but northern beekeepers will find it very useful.

Two or three handfuls of soft snow dashed along the entrance of the hive filling the opening completely will effectively keep the bees within the hive when they are being carried into winter quarters. In the spring, also, if snow is applied to the front of the hive before it is carried from the cellar to the summer stand the bees will keep strictly within the hive. The slow melting of the snow after the hive is on the stand acts as a gradual release for the bees.

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

POINTS ON WINTERING

I. I wish to know if it is best to kill the drones at this time of year or at any time?

2. If bees are wintered in bee house should the entrance to house be closed or left slightly open to give air to bees?

3. Would it be right to screen entrance to hive to keep the bees in and from early flying in spring, or should they fly at any time when they wish to do so?

4. Should the burlap on hive be partly removed to give bees air in winter? I plan to take off all caps or supers about the 20th of September and let the bees glue the burlap to suit themselves, or must they have air on top?

5. Pardon me for asking questions. I am an amateur at beekeeping and lost 6 colonies last winter by improper packing. My hives are all double-walled and put in a bee house which is not very warm, but keeps them dry and breaks the wind.

MICHIGAN.

Answers.—1. Unless you are afraid that the drones will give you mismatings with your young queens, it is not of much use to kill them, because the most of their expense is in rearing them. After they are reared, they eat comparatively little and the bees do away with them as soon as the crop stops. But if you have hybrid or black drones, it may be necessary to kill them, in order to secure matings with the pure ones.

2. Wintering bees, in confinement, in a bee house where the temperature varies above 50 and below 40, is not advisable. But if you can keep the temperature between these points, or about 45 degrees, the bees may winter all right. This is more important than a large amount of ventilation, so a little opening would probably be sufficient. An open door gives too much variation of temperature. A cellar or a room in the bank of a hill is better than an ordinary bee house.

3. Screening the entrance of the hive when the weather is so that the bees wish to take flight would only cause them to worry and die. Better leave the entrance open and try to make conditions such that they will not wish to fly at undesirable times. Even when there is snow on the ground, we find it better to let the bees fly than insist on preventing it.

4. Although we do not want a current of air on top of the combs, we like to have a porous ceiling to the hive, so that the moisture may escape into it instead of falling back through the hive. So we use absorbents over the combs, such as straw, shavings, sawdust, etc. The moisture is thus absorbed without causing an undesirable air current.

5. The loss of 6 colonies is very probably due to their becoming restless in that bee house, either from too much warmth or from wanting to take flight to discharge their abdomens loaded with fecal matter. If the house was of even temperature, they would consume so little honey that they would not become restless. If your hives are double-walled, it is better to leave them out, unless you have a good bee cellar. You may protect them from the winds and let them have a flight on warm days.

CELLAR WINTERING

1. Should one put all ten frames in a one-hive body, when a swarm is large, if a person winters them in the cellar? Would there be room for the bees?

2. We winter our bees in a basement which contains a furnace. The temperature of this ranges around 50 degrees. We wintered one colony in the basement last year for a trial. They were restless at the beginning of the winter but later quieted down and came out fine in the spring. Those we wintered outside suffered great losses, some colonies being entirely lost. Do you think the temperature of the basement too high to be successful?

SOUTH DAKOTA.

Answers.—1. Of course we retain all the combs in a hive when it is strong, for winter, whether in the cellar or out-of-doors. I have never yet seen a colony that would not hold in a 10-frame hive for winter. But if you should have such a colony it would do no harm to keep it in two stories, even in the cellar.

2. The experiments of Phillips and Demuth show that the normal temperature of a colony, in winter, when it is quiescent, is around 59 degrees. This was taken in a locality of low elevation, and it might vary with a different elevation. This is the temperature of the inside of the cluster. It is generally conceded that the outside must

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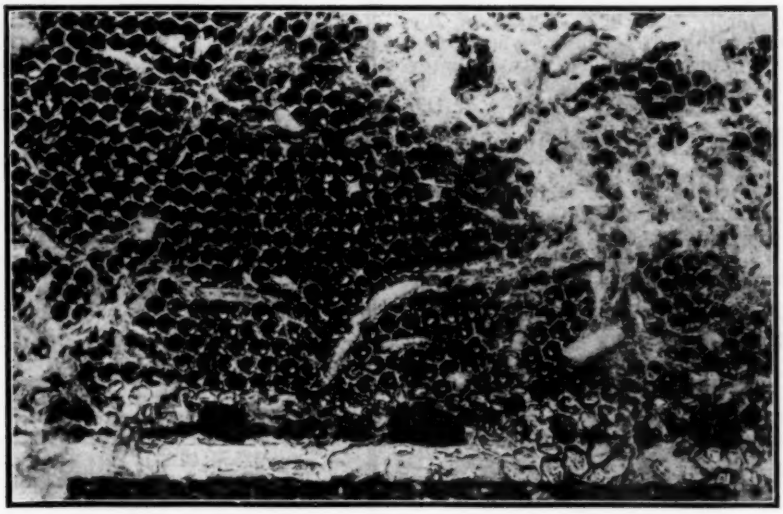

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be lower. We find from 42 to 45 degrees to be the best in the cellar, in this locality. A temperature of 50 may do in South Dakota. It is easy for you to test, as you can surely lower the temperature more readily than you can raise it. Test the degree at which your bees are most quiet and keep it at that. It will probably be somewhere between 42 and 50 degrees. In a cellar containing a number of colonies you will find the temperature higher than where there is only one, for the bees will raise it a little.

WAS IT FOULBROOD?

I have a question or two to ask you. I recently examined a colony of bees for a friend of mine. He hived the swarm the first week in June, using a 10-frame hive, full sheets of foundation. When I opened the hive I found four frames of honey on one side almost all capped. Of the remaining six frames about one-third of each was eggs and brood, the rest honey. He had had a super on only a few days and they had not gone to work on it yet.

I found quite a few cells containing dead larvæ, probably about 100 or 125 at a guess, on all six frames. From the looks of things they must have died after the cells were capped for you could see the shape of the bees plainly, even to the eyes. They were shriveled up and dark brown in color, almost black, probably filled about half of the cells. Also noticed a few cells capped with the cap sunken in. I have never seen any foulbrood that I know of, but from what I have read of it I thought perhaps it might be American foulbrood. I have never found anything like that in my own colonies and would like your opinion.

As near as Mr. Johnson can tell, there were about two gallons of bees in the swarm and I don't think there are that many now. I noticed the queen and she seemed to be as lively as any of the rest of the bees.

NEBRASKA.

Answers.—This has much of the appearance of American foulbrood to me. But there are three points on which there is little chance of making a mistake, in addition to the fact that American foulbrood is found usually in fully grown larvæ or in sealed cells

1. The larva is ropy; when you try to remove it from the cell with a toothpick the body strings out like india rubber.

2. The odor of American foulbrood much resembles the odor of a glue pot, while the odor of European foulbrood is either a sour smell in its first stages or of carrion, after it has decayed.

3. The color of American foulbrood is of brown coffee color and it remains so until it dries in the cell. The bees are rarely able to remove any of it, because it sticks to the lower side of the cell.

I would recommend that you send samples of this dead brood, well packed so as not to scatter any disease to the Division of Apiculture, Bureau of Entomology, Washington, D. C. They are very accommodating and will tell you promptly whether it is the real disease. They will also give you directions for treating it which I cannot well do in a letter.

EXTRACTING CLOSE TO APIARY

1. I have a building about 25 feet from my apiary. Would you not think it is too close to extract honey in that building from the apiary? This is the first year I am going to extract honey, because I used to run for comb honey. I have another building about 350 feet away from the apiary. That building is not so handy for me.

2. I have noticed in each hive that a few of the bees have something on their feet that looks like fine threads on the end of their feet, and they can hardly walk; they just slide, and the other bees take them away from the hives; they don't want them. My bees are all healthy; they are

good workers, all very strong colonies. I got them all in double-walled hives. Would you please tell me what it is? OHIO.

Answers.—1. The nearer the building is to your apiary, the better it is for extracting. As a matter of course it must be made bee-proof by placing screens upon all the openings. Whether the building is 25 feet or 300 feet from the apiary it is necessary to make it bee-proof, as the bees would soon find it when you begin to extract honey.

2. Those fine threads that the bees carry on their feet are very probably milkweed pollen bags such as are described on page 315 of the last edition of the "Honeybee." Sometimes the bees become prisoners upon the milkweed blossom, owing to those traps. However, the milkweed is such a good honey plant that it is more profitable than injurious. The only kind of milkweed which causes that trouble is the Asclepias Cornuti or Syrinca. There are dozens of varieties of this weed, all good honey producers.

LAYING WORKERS

I am having my first experience with laying worker bees. When I first discovered my misfortune, I consulted what literature I had at hand, then a friend beekeeper. Following the combined advice received, I shook the bees off the frames, at a distance of about 15 feet in front of the hive, putting back absolutely beeless combs; then I gave them a comb of young brood from another colony. The supposition was that the laying workers would not return to the hive, but be lost. I then proceeded to introduce a young queen (in a few days' time.) Now my queen has been allowed to leave the cage alive, but I am not, as yet, sure as to her fate further on, but what I do know is that there are still laying workers in that colony. They did get back to the hive. What I want to know is this: if I find the new queen has been accepted and has gone to laying, will it be necessary for me to do anything more to rid the colony of the laying workers? Will this situation right itself by their natural death or the queen destroying them? I am very anxious to save the colony, partly because I want to keep it, and partly because I do not like to acknowledge defeat. Anything you can tell me will be much appreciated.

Indiana.

Answer.—I like your pluck in not wanting to acknowledge defeat. In the matter of drone-laying workers, there is always an element of uncertainty. However, if your queen has really been introduced safely and is laying, you need not worry about the remaining laying workers. They will either quit of their own accord or the bees will do away with them, whenever they find that the queen is doing her duty.

It is said that a colony with drone-laying workers does not accept a queen. But I have never failed in introducing a queen to them, because, acting upon the idea that the queen is running great risks, I have always given such a colony a queen destined to be killed. Such queens are taken out of colonies while in full laying condition, to be replaced with purchased queens that have done some traveling. The latter are much more in danger of being superseded because they have had their laying interrupted; but the hybrid queen which I took out of a colony in ordinary condition was in good laying trim and therefore readily accepted. I have never done this introducing in an observation hive, so cannot say whether the queen killed the drone-layers; but I am inclined to believe that they simply gave the rule up to her.

KEEPING HONEY LIQUID

Would like to ask you if there is no way to keep the honey in liquid form in containers? I heard of putting the cans in boiling water; will that help? If so, must it boil? or how hot must the honey be made before it keeps in liquid form? Will it lose its flavor thus by cooking in cans or not?

WISCONSIN.

Answer.—Honey may be heated to keep it from granulating, but it must not be heated to a greater heat than 160 degrees. If you use boiling water to heat it, you will likely spoil it more or less and give it the "cooked" taste of molasses. Most people put the vessel containing it in water and let it heat, by bringing it slowly to the desired point. It is well to use a thermometer.

It would really be better to get the consumers used to the fact that honey does granulate in cool weather and that they can render it themselves. In some parts of the country, in Canada and in Europe, consumers expect honey to granulate and mistrust honey that does not granulate, because they think that glucose has been mixed with it. So it is well to explain in your labels that the honey has been heated to keep it from granulating. Many people prefer granulated honey, because it retains all the fine flavor of the blossoms which may be evaporated in heating it. Of course, honey that is unripe and has fermented or is likely to ferment should be heated to prevent any further damage.

MOVING IN FALL

I have about 50 colonies of bees that I wish to move about 20 rods. When is the best time to move them?

I should prefer to move them this fall if it is advisable. IOWA.

Answer.—Moving bees 20 rods is a ticklish job at any time, but I would prefer doing it during the flying season, as the old bees remember their location even after confinement in cellar.

Disturb the colonies greatly, so as to make them feel as if they were in a swarming condition. Select some cool night and confine them, then move them, releasing them in the morning with quite a little disturbance and some smoke. Place a slanting board in front of the entrance so they may know they are no longer in the old location. If it is done properly, only a few of the oldest bees will return to the old spot. If you leave the weakest colonies a day or two longer than the others, they will gain all the returning bees; then you can move them the same way afterwards.

ANTS IN SUPERS

Please tell me at your earliest convenience how to keep ants out of my comb honey supers after the escape board is put in. NORTH DAKOTA.

Answer.—A very small amount of kerosene oil, rubbed along the edge of the hive a little ways below the supers, is usually sufficient to annoy the ants and keep them away. Some people tack a strip of tar paper around the hive, which the ants dislike so as to cause them to go elsewhere. Some people place the bottom board of the hives over dishes or cans filled with water; but that is a rather expensive way.

A very good plan is to find the nest of the ants and pour coal oil or gasoline on it. It is also recommended to spread London purple around it. Ashes about the apiary will annoy ants.

There are dozens of other remedies against ants, and you will find details of them on pages 409, 512, 554, 611 and 628 of the year 1923 of this magazine. It pays to preserve the back numbers, well bound together.

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Statement of the Ownership, Management, Circulation, Etc., required by the Act of Congress of August 24, 1912, of American Bee Journal, published monthly at Hamilton, Ill., for October, 1925:

STATE OF ILLINOIS, } **ss.**
County of Hancock. }

Before me, a Notary Public, in and for the State and County aforesaid, personally appeared M. G. Dadant, who having been duly sworn according to law, deposes and says that he is the Business Manager of the American Bee Journal, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, rendered by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor and business manager are:

Publishers, American Bee Journal, Hamilton, Ill.

Editor, C. P. Dadant, Hamilton, Ill.

Managing Editor, Frank C. Pellett, Hamilton, Ill.

Business Manager, M. G. Dadant, Hamilton, Ill.

2. That the owners are:

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That the known bondholders, mortgagees and other security holders owning or holding 1 per cent or more of the total amount of bonds, mortgages or other securities, are: none.

(Signed) M. G. DADANT.
Business Manager American Bee Journal.

Sworn to and subscribed before me this 10th day of September, 1925.

BIRDIE ASH,
Notary Public.

My commission expires March 6, 1926.

For the Ladies

To whiten your skin, take 100 parts of honey, 25 parts glycerine, rose water 25 parts, citric acid 3 parts, with a few drops of essence of ambergris or of essence of roses; make a liniment out of this and apply on the skin. (Nahhla, page 200.)

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Interesting--Delightful--Thoroughly Satisfying?

Such a book is rare. "The Spirit of the Hive," by Dallas Lore Sharpe, is a wonderful revelation of the true pleasure and poetry of beekeeping. Dallas Lore Sharpe is both a beekeeper and a nature writer with imagination.

Altogether "The Spirit of the Hive" is a book in which you, as a beekeeper will find a true and lasting pleasure.

Price, $2.50

AMERICAN BEE JOURNAL, Hamilton, Illinois

Honey Luncheon Cakes

Two eggs beaten, one cupful of honey, one-half cupful of sour cream, one-half cupful of butter, two cupfuls of flour, scant one-half teaspoonful of soda, one tablespoonful of cream of tartar. Bake thirty minutes in a moderate oven.

Honey Shortcake

Mix two teaspoonfuls of baking powder with three cupfuls of flour, pinch of salt, one-half cupful of shortening, and one and a half cupfuls of sweet milk. Roll and bake in a hot oven; when done let cool soon as prepared.

Meetings and Events

Crop in East and North Central States

As in the states to the west of them, late rains have proved unexpectedly helpful to the honey crop in this area. Conditions are streaked, and some report only one-third crop, but in general yields will be above average. Minnesota expects a bumper crop, and in Michigan some large beekeepers look for a surplus average of 150 to 200 pounds. One scale hive in Minnesota is reported as showing a gain of 15½ pounds in a day. Even in Ohio, in which the outlook was discouraging, recent rains have brought out and prolonged the clover flow, and a fairly good crop is anticipated. Recent rains will also be beneficial, not only to fall plants, but to young clover. The comb honey yield will be small.—(Honey News Letter—173—U. S. D. A.)

International Association

The International Association publishes a list of 9 governments having paid their membership. It gives also a list of 22 Beekeepers' Associations affiliated. Six of these are from the United States, and 80 individual members, outside of Canada are on the list.

Beekeepers desiring to become members and receive the report of the meeting, in either French or English, should send $2 to Mr. C. Vaillancourt, Ministry of Agriculture, Quebec.

J. E. Eckert to Washington

The North Carolina News Letter informs us that Mr. J. E. Eckert, their efficient and pleasing Secretary-Treasurer, has resigned to accept a position with the Bee-Culture Laboratory at Washington. Mr. F. B. Meacham will succeed him at Raleigh. If Mr. Meacham proves as pleasant and as efficient as Eckert, he will certainly be a success.

The North Carolina State Fair is to be held October 12-17. Prominent space and a liberal amount of prize money are promised.

Parker to Kansas

The many friends of Dr. R. L. Parker, long connected with the Iowa College of Agriculture, will be pleased to learn that he is now settled at the Kansas College of Agriculture at Manhattan, as successor to Dr. J. H. Merrill, who resigned his position to engage in commercial honey production and fruit growing. Mr. Parker has only recently completed work for his doctor's degree at Cornell University.

Demonstrations in Iowa

We are indebted to Lewis J. Smith for the description of one of the Iowa demonstrations at the home of Jim Mickelson, at Harlan, August 8th, published in the Harlan paper August 13. It describes the demonstration

of queen introduction by Professor Worthington, of Ames. These demonstrations are useful to all beekeepers. They report that over 40 were present.

Joint Meeting of North and South Carolina a Success.

The annual joint meeting of both North and South Carolina Beekeepers' Associations was held at Charlotte, N. C., on September 10-11. This was a very satisfactory meeting and was largely attended by beekeepers from both states, in the face of the drought and extremely hot weather.

The out-of-state speakers on the program were: Mr. Jas. I. Hambleton, from the Bee Culture Laboratory, Washington, D. C., who gave interesting talks on the workings of the laboratory. Mr. J. J. Wilder, editor of the Dixie Beekeeper, Waycross, Ga., discussed beekeeping practices in his special locality. Mr. C. W. Cary, of the A. I. Root Company, Norfolk, Va., spoke on proper equipment and selling honey. Mr. T. M. N. Lewis and Mr. A.D. Hiatt, of the G. B. Lewis Company, the former from Watertown, Wis., and the latter from Lynchburg, Va., were unable to attend on account of a recent fire in the Lynchburg house.

State officials appearing on the program were Dr. Z. P. Metcalf, Mr. C. L. Sams and Mr. F. B. Meacham, all from State College, Raleigh, N. C.. From South Carolina we had Mr. E. S. Provost, Extension Specialist, Clemson College.

New Hampshire Meeting

The seventh annual meeting of the New Hampshire Beekeepers' Association was held August 27, 1925, at Durham, N. H., in connection with Farmers' Week. Mr. A. L. Littlefield, of Salem, N. H., was reelected President; E. C. Wardwell, of Wadleigh Falls, Vice-President; J. R. Hepler, of Durham, N. H., Secretary-Treasurer. Mr. Allen Latham, of Norwichtown, Conn., spoke on doubling the honey crop and gave a demonstration on handling and requeening bees. Mr. G. C. Barton, of Meriden, N. H., the State Apiary Inspector, gave a report on what he has accomplished in eradicating foulbrood in New Hampshire, and Walter Severson, of Albany, N. Y., talked on saving time in the apiary.

J. R. Hepler, Sec.-Treas.

Honey at Oregon Fair

The Pacific International Honey Exhibit that will be held in Portland, Ore., October 31-Nov. 7, 1925, in connection with the Pacific International Live Stock Exposition, invites producers everywhere to support this exhibit by sending in entries.

Oregon is perhaps unique among Western States in that it consumes more honey than it produces, and as Portland is a center of honey trade, this exhibit offers an exceptional opportunity of displaying honey from other states to the consumers of the Northwest. The premiums offered amount to $136.00.

New Association in Northern Illinois

Mercer and Rock Island County beekeepers met at the home of Dow Ripley, in Buffalo Prairie, on Labor Day, for organization purposes. The resulting association will be known as the Rock Island and Mercer County Honey Producers' Association, which will be affiliated with the state organization and will hold annual meetings each Labor Day.

Dow Ripley was recommended for Inspector.

The following officers were elected: President, Dow Ripley, of Buffalo Prairie; Vice President, A. N. West, of Aledo; Secretary, P. C. Freytag, of Reynolds; Treasurer, H. E. Miller, of Aledo.

Colorado Beekeepers, Take Note

Mr. Frank Rauchfuss, of the Colorado Honey Producers' Association, informs us that they have recently installed at their office, 1424 Market Street, Denver, Colo., one of the new Government graders. In so far as the price of these graders, which is $40.00 each, is beyond the reach of the average producer of extracted honey, they have kindly suggested that they will be willing to test out samples of honey and give return reply to any beekeeper that wishes to send such samples in. The samples should be 4 oz. or more in size, and the honey should be clean and well strained, put up in proper mailing tubes.

Henry County, Illinois Beekeepers

The Henry County beekeepers met for the fifth time in 1925, at Kewanee, this time August 18. Nine counties were represented, Henry, Bureau, Whiteside, Rock Island, Mercer, Warren, Knox, Cook and Scott County, Iowa. They will have another meeting at Cambridge, the first day of October. Summer meetings are good because they enable beekeepers to visit the apiary where the meeting is held.

Isaac Hopkins Passes On

Isaac Hopkins, of New Zealand, died in July. He was born in 1837 and was called the "Father of Australasian Beekeeping."

He was the man who introduced movable frame hives into Australasia and one of the first to import Italian bees. He was also the originator of the "Apiaries Act" which is helping destroy foulbrood in New Zealand.

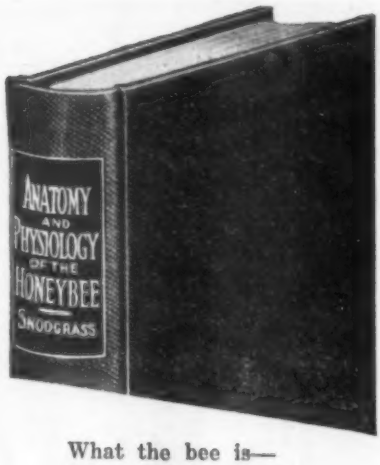
Northern Illinois and Southern Wisconsin—October 20

The Northern Illinois and Southern Wisconsin Beekeepers' Association will hold their annual meeting at Rockford, Ill., on October 20. Further particulars may be had by writing the undersigned, Secretary.

Court D. Huggans.

Western Firm Disbands

We have learned recently of the disbanding of the Foster Honey and Mercantile Company, of Boulder, Colo. This company has disposed of their entire honey packing establish-



What the bee is—
What it does—
And how it does it—

Valuable to every beekeeper who wishes to have in his library an authentic reference work on the insect of so much interest and importance to him.

Published February, 1925.

Anatomy and Physiology of the Honey Bee

by R. E. Snodgrass
U. S. Bureau of Entomology.

327 pages, 6x9, 108 illustrations, $3.50

(English price, 17-6 net, postpaid.

American Bee Journal
Hamilton, Illinois

PORTER

BEE ESCAPE SAVES HONEY TIME MONEY

For sale by all dealers.
If no dealer, write factory.

R. & E. C. PORTER, Mfrs.,
Lewistown, Ill., U. S. A.
(Mention Am. Bee Journal when writing).

Mack's Queens
will more than please you
Herman McConnell
(The Bee and Honey Man)
ROBINSON, ILL.

JUST as surely as the display of Honey will gain sales, so will Honey packed in "Diamond I" Honey Jars gain display.

"Diamond I" Honey Jars are available in ½, 1 and 2-lb. sizes, packed in corrugated reshipping cases. The ½ and 1-lb. jars are packed 2 dozen to the case. The 2-lb. jars, 1 dozen to the case.

Order through your regular Bee Supply House.

DISTRIBUTED BY Colorado Honey Producers' Association, Denver, Colorado; Dadant & Sons, Hamilton, Illinois; G. B. Lewis Company, Watertown, Wis., Memphis, Tenn., Wichita, Kans., Albany, N. Y. and Lynchburg, Virginia; A. G. Woodman Co., Grand Rapids, Mich.

Illinois Glass Company

Established 1873

ALTON ILLINOIS

HONEY CONTAINERS

2½	lb. cans, per carton of 100	$4.00
5	lb. pails, per carton of 50	3.50
5	lb. pails, per carton of 100	6.75
10	lb. pails, per carton of 50	5.00

Write for prices on lithographed pails

Above packed in cartons which are dust proof, light and easy to handle, keeping your cans and pails clean until you are ready to use them.

5	lb. pails, per case of 12	$1.10
10	lb. pails, per case of 6	.90
60	lb. cans, 1 per case	.90
60	lb. cans, 2 per case	1.25

Above packed in wooden reshipping cases

GLASS JARS

8	oz. honey capacity, Tall or Fluted, per case of 24	$1.05
16	oz. honey capacity, Tall or Fluted, per case of 24	1.35
32	oz. honey capacity, per case of 12	.95

All above prices F. O. B. Reedsville, Wisconsin

Write for prices on large quantities of pails and glass jars, stating number and sizes wanted

SECTIONS

4¼x4¼—	1½ in. Plain No. 2, per 1000	$7.50
4 x5 —	1⅝ in. Plain No. 2, per 1000	8.00
4¼x4¼—	1⅞ in. Beeway No. 2, per 1000	9.00

SAVE MONEY—on your supplies by getting our quotations on your requirements

A. H. RUSCH & SON CO., Reedsville, Wis.

ment to the Morey Mercantile Company, of Denver, Colo., a wholesale grocery firm.

Mr. Chadbourne, formerly connected with the Foster Honey and Mercantile Company, has gone with the Morey Mercantile Company to oversee the packing of their honey and do the purchasing of the same.

League Schedule of Meetings

The Central State Schedule Committee of the American Honey Producers' League is now making arrangements for winter meetings throughout its circuits, which includes Kansas, Oklahoma, Texas, Minnesota, Iowa, Missouri, Arkansas, Wisconsin, Illinois, Michigan, Kentucky and Ohio. The success of your schedule will depend upon the cooperation of these Associations.

O. Wallace Park, Chairman.

Bee Supplies Destroyed

The warehouse of the G. B. Lewis Company, 408-10 Twelfth Street, Lynchburg, Virginia, was destroyed by fire the morning of September 4, with practically a complete loss, fully covered by insurance. Arrangements have been made to care for business with little interruption.

A Yankee Beekeeper's European Rambles

3. In England

By Harry Lathrop.

I AM now at the home of Mr. R. B. Manley, beekeeper and farmer, on a part of the great estate of the Duke of Marlborough.

Mr. Manley is an up-to-the-minute beekeeper and progressive in the best sense of the term. Today I saw strong colonies in his yards storing honey fast. There are fields of crimson clover and sainfoin in full bloom and I presume that is the source of the present flow. White clover, so Mr. Manley informs me, does not come in until about July 15. Linden is abundant but does not often yield much on account of weather conditions. Bees are beginning to cast swarms and, granted fairly good weather conditions, Mr. Manley is in line for a nice crop of honey this season.

Mr. Manley is a good writer on beekeeping subjects, but he has not told you that he lives in the midst of one of the fairest landscapes in all England, or the world, for that matter, in the great Blenheim Park of nearly 3,000 acres, elms and oaks that have stood where they are from 300 to 1,000 years.

When I was a boy in Ohio, I loved and admired the beech forest, but here I saw beeches with smooth stems twice as tall as any we had, and such great walls of green foliage as they make are beyond my powers of description. A reference to English history will show you what notable events have taken place here at Blenheim, but I cannot enumerate them here.

Before coming here I spent two

days at Stratford-on-Avon and was not disappointed in the fulfillment of my dreams of the spot that was the home of the greatest English poet that ever lived. Stratford and the Avon! All is beautiful and the beauty is being carefully preserved with all its historic association. After visiting Oxford and London I expect to go down among the beekeepers of Kent.

While beekeeping in both England and Ireland has suffered much adversity during the past few years, I believe conditions will improve and the industry will build up again.

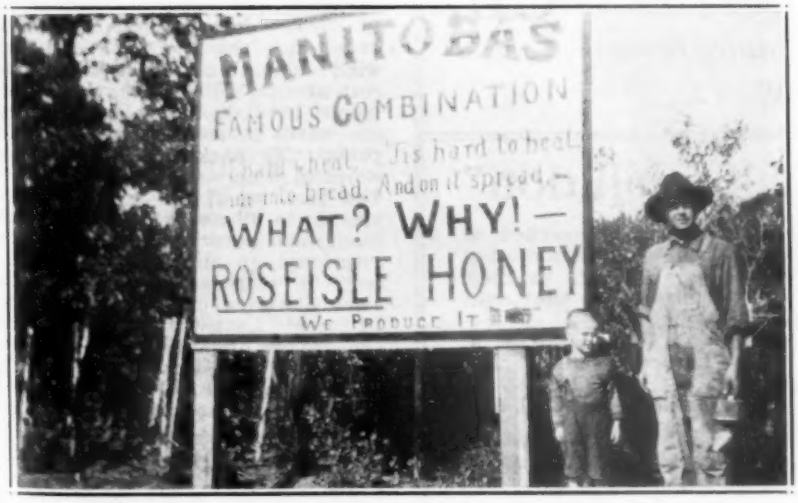
The Year In Manitoba

By J. H. Otto.

BEES went into winter quarters in fair shape and came out 100 per cent of colonies alive, although some rather weak. We had cold down to 40 degrees below zero, but the last part of March was remarkably warm. All snow had practically gone by March 25. Bees were taken out of cellar March 28, as they were getting restless and weak ones were united. April was very warm the first three weeks. Bees bringing in pollen from willows on April 8, earliest on record for this district.

Apiaries like this one of Otto's are becoming prominent in Manitoba.

Brood by April 20th averaged 4 to 5 frames to hive in cellar wintered colonies. The outside wintered hives were much stronger, had more stores and more brood. On April 11th they had 5 frames Jumbo, brood and eggs. May was, on the whole, fairly cool, with snow flurries, different times up to May 15th. Dandelions then came in with wild plum blossom, pinchcherry and chokecherry, following which gave some small surplus and bees built up well, so that a 12-frame Jumbo hive cast a swarm on May 28th, leaving 11 frames brood and eggs out of 12 in hive. May swarms are not very common here, at least not in hives larger than 8-frame Langstroth.



A worth while sign. Standing by it are J. H. Otto and his son.

So far, the present season seems

Achord Queens

Splendid honey producing Italians. Reared in one of the largest, best equipped queen rearing and package shipping establishments in the South.

Select young laying queens, untested, 75c each. Any number. Tested queens, $1.50 each. Any number.

Promptly mailed to you in large mailing cages with 1925 inspection certificate. Safe arrival guaranteed.

W. D. ACHORD

Fitzpatrick, Ala.

—QUEENS OF—

Moore's Strain

OF ITALIANS PRODUCE WORKERS

That fill the supers quick
With honey nice and thick

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.
Untested queens, $1.00; 6, $5.00; 12, $9.00. Select Untested, $1.25; 6, $6.00; 12, $11.00. Safe arrival and satisfaction guaranteed. Circular free.

J. P. MOORE, QUEEN BREEDER,
Route 1, Morgan, Kentucky.

CAUCASIAN QUEENS

On and after September 1st our prices for our Grey Queens for balance of season are:

One untested queen, $1.35; six, $6.75; dozen, $13.50. Tested, one, $2.50.

Also package bees for early spring delivery. Write for prices.

BOLLING BEE CO., Bolling, Ala.

Golden Queens and Banded Bees

Untested queens.....$1.00 each
Tested queens..... 1.50 each
Bees ..... $1.50 per lb.
Nucleus.....$1.50 per frame
Bees inspected; free from disease.

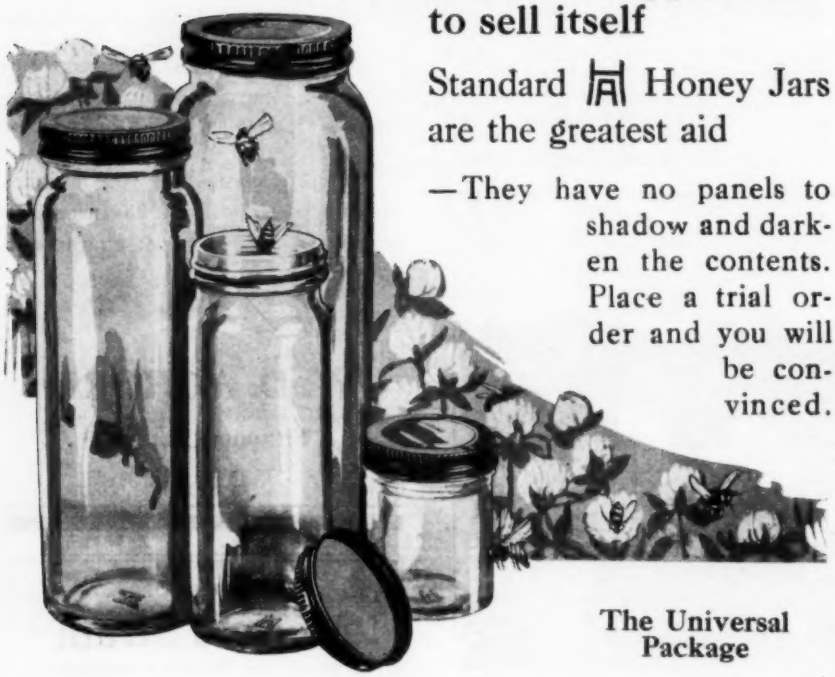
J. W. SHERMAN
Valdosta, Ga.

Pack Your Honey

—IN—

GLASS

—Allow its luscious appearance to sell itself



Standard Honey Jars are the greatest aid

—They have no panels to shadow and darken the contents. Place a trial order and you will be convinced.

The Universal Package

DISTRIBUTORS

A. I. Root Co., Medina, Ohio
Hoffman & Hauck, 1331 Ocean Avenue, Woodhaven, N. Y.
A. G. Woodman Co., Scribner Ave. and Blumrich St., Grand Rapids, Mich.
The A. I. Root Co. of Iowa, Council Bluffs, Iowa
A. I. Root Co., of St. Paul, St. Paul, Minn.

Hazel Atlas Glass Co.

Designers and Manufacturers

WHEELING, W. VA.

"The Water Formalin Solution"

The number of **unsolicited** testimonials which have reached us and the favorable response from those to whom we have addressed an inquiry indicate that the surface tension of liquids or their ability to penetrate propolis are of little importance in the treatment of combs infected with AMERICAN Foulbrood.

There are beekeepers in every State in the Union who have, during the past season, used the D. & B. Re-Processed Water Formalin. Perhaps one of them is an acquaintance.

Better make inquiry, Mr. Beekeeper, and learn the FACTS concerning the economy and effectiveness of our product.

The D. & B. Chemical Co.

800 E. 37th Street, Portland, Oregon.

or

THE DIAMOND MATCH CO., Distributors, Chico, Calif., or Pierce Building, St. Louis, Mo.

far more favorable than last, which was one of the poorest for many years here. Last year many only averaged 15 to 20 pounds surplus. I had 45 to 50 pounds surplus as against 200 pounds surplus to colony two years previous. There was very little sweet clover but quite a lot of white Dutch clover on railway right of way through Pembina Hills, two miles west of here. We never saw a tame bee working on it all season.

This year bees are working quite freely on white Dutch and alsike; sweet clover is steadily on the increase in this district; the roadsides are getting fairly covered in several places and it all helps. We also have quite a quantity of snowberry here that carries bloom a long time and keeps up a small flow for about two months from beginning of June to end of August, so that there is practically very little let up in brood rearing.

Our chief flow comes on in August, from second crop sweet clover, sow thistle, goldenrod, aster, etc. We have got, up to present, about 35 pounds surplus, mostly from sweet clover.

Our problem here is wintering. I myself have now wintered out two winters in insulated hives of my own idea. Both winters they have come through A 1, although we have had very little snowfall and cold down to 40 degrees to 48 degrees below zero. Roughly, these outside hives are made up as follows: 1 ply three-fourths inch lumber, then one-half inch ply Universal Insulite, then one-half inch air space, then Insulite again, and then three-fourths inch lumber again for the bodies. The bottom board is made the same way and cased in, which makes it like a solid block of Insulite and lumber 3 inches thick. The top has 12 inch sides (single ply lumber only in tops) which allows me to lay queen excluder on top of frames, then a 9 or 10 inch pillow of chaff on top of excluder and allows sides of top to drop down about 2 inches over the hive body and the wind cannot lift it. These hives cost about $8.00 each to build (12-frame Jumbo), less labor, but they are worth it, as they are there for years. No packing or unpacking, warm in winter and cool in summer. The past week has been extremely hot, up to 92 and 94 degrees in the shade, and never saw more than the guard out on alighting boards. Intend to winter out altogether this coming winter in 12-frame Jumbo; 10-frame Langstroth is not big enough for brood chamber for good queen and the Jumbo is nearer to size of Modified Dalant, which is a real good hive, to my idea.

Honey Bran Bread

Sift together one cupful of corn meal and two cupfuls of graham flour, then beat together with one cupful of honey, two cupfuls of sweet milk, one cupful of sour milk, one teaspoonful of soda, and a pinch of salt. Place in a baking dish form and steam three hours.

Chicago Produce Men In New Location

Our readers will probably already be acquainted with the fact that the old "South Water Street" of Chicago, known for many years as the Commission Street of that great city, has had to be vacated on account of the fact that a new drive was being projected which would necessitate the destruction of many of the commission firm buildings.

Accordingly, a plan was evolved whereby the entire Commission District would be removed to the new location at a cost of some $17,000,000. The move is now practically completed and the firms are now located in their new home, which will be on South Water Market.

It is to be hoped that the commission men will be able to extend and increase their activities in their new location and that this will be reflected also in the handling of honey.

Packing For Winter

Our bees do better outdoors than when moved inside. When the last supers are taken off in the fall, a super filled with a bag of hay is put on and left until spring. When cold weather comes the hive with the hay super is wrapped and covered. In the spring the wrappings are removed, but the hay super is left until the supers for honey are put on. We seldom lose any bees from the winter, and give the credit to this hay super, which is warm and gives extra air.—E. M. F.

New York.

Honey and Its Use In the Home

This is a 22-page Bulletin, No. 653, of the Department of Agriculture. It is by Caroline L. Hunt and Helen W. Atwater. Besides a thorough explanation of the nature of honey, it gives a number of recipes for its use in cooking and preserving fruits. It may be had from the Department of Agriculture at Washington, in the usual way, and would be quite a help to the beekeeper who tries to educate his customers in the use of honey and in emphasizing the fact that pure honey granulates readily.

Selling to Company Stores

Has any beekeeper tried the plan of selling honey through stores which are operated by employees of a big institution? The Hawthorne Club of the Western Electric Company at Chicago bought fruit by the carload from Michigan growers and sold it to the employees at cost prices. A concern like this is a big market; there are 35,000 on the payroll. There are many more like it; maybe not all are so large.

Honey Containers

5-lb. Friction Top Pails, per case of 12	$1.10
10-lb. Friction Top Pails, per case of 6	.90
5-lb. Friction Top Pails, per carton of 50	3.50
10-lb. Friction Top Pails, per carton of 50	5.00
60-lb. Square Cans, per case of 2 cans	1.25
60-lb. Square Cans, in bulk, each	.40
16-oz. Round Glass Jars, per case of 24	1.25
6½-oz. Tin Top Tumblers, per case of 48	1.60

All above prices are F. O. B. Boyd, Wis.

Write for our prices on comb honey shipping cases.

August Lotz Company, Boyd, Wis.

These Bee Books Have Stood the Test

First Lessons in Beekeeping, by C. P. Dadant.

Attractive cloth binding, 167 pages, 178 illustrations $1.00

The Dadant System of Beekeeping, by C. P. Dadant.

How to Use the Hive, 118 pages, 37 illustrations, cloth binding $1.00

A Thousand Answers to Beekeeping Questions by Dr. C. C. Miller.

Well illustrated, 276 pages, cloth bound $1.25

Practical Queen Rearing, by Frank C. Pellett.

105 pages, 40 illustrations $1.00

Outapiaries, by M. G. Dadant.

110 pages, 60 illustrations $1.00

Scientific Queen Rearing, by G. M. Doolittle.

Leatherette ..... $ .50

Beekeeping in the South, by Kenneth Hawkins.

A special study of Southern conditions $1.25

AMERICAN BEE JOURNAL
HAMILTON, ILL.

DITTMER COMB FOUNDATION

If you want nice yellow foundation made of pure beeswax and without the use of **acids** and **adulterants** of any kind, try **Dittmer's.** It will stand the extreme test required of **Pure Wax.**

We make a **Specialty** of **working** your wax for Cash.

Write us for samples and prices.

A full line of supplies and the **Best** Sections and Hives made in Wisconsin, at lowest prices and in any quantity.

GUS DITTMER COMPANY, Augusta, Wisconsin

NOTE—THIS SAME AD APPEARED IN THIS SPACE LAST MONTH. WE ARE DUPLICATING THIS ANNOUNCEMENT AGAIN BECAUSE THE RESPONSE FROM WESTERN PRODUCERS WAS SO GENERAL AND INSTANTANEOUS AS TO SHOW A GREAT INTEREST IN THE MATTERS DISCUSSED BELOW. THIS LIST WILL NOT ONLY INTEREST YOU, BUT SAVE YOU MONEY. USE THE COUPON TODAY, TO GET DETAILED DATA ON THESE MONEY-SAVING BARGAINS.

Return the Coupon below and Save Money!

"Never Before"—

The most valuable list Western Producers will receive this fall is our 1925 container list.

For in addition to advantageous prices this list announces several items that are of utmost importance to Western Growers.

The following facts will show why this descriptive and detailed price list will interest every producer who wants the best possible prices.

For the first time, we are listing 60 lb. cans in the bulk; 24 cans packed in one light shipping crate, at money-saving prices.

For the first time, corrugated cases are offered, in which to ship one 60 lb. can of honey. This package is a great convenience in handling. Cases for sale separately, or packed with cans. 60's so packed cost less.

Our all-pine "Display Case" for shipping and display-comb honey is the cheapest satisfactory wooden case you can buy. It is a tremendous success. Complete with glass. Worth investigating.

If you expect to buy a honey tank this fall, you will be interested in the special offer made in this list on guaranteed Root Honey Tanks.

Corrugated cases prepared especially for our trade are complete in packages of ten with tape to seal each case. An advantage to busy producers, which costs nothing extra.

CARLOAD STOCKS OF GLASSWARE, TINWARE, CANS AND COMB HONEY CASES HERE AT COUNCIL BLUFFS TO INSURE PROMPT DELIVERIES.

NEVER BEFORE HAVE WE BEEN ABLE TO MAKE SUCH ADVANTAGEOUS PRICES ON A FULL LINE OF CONTAINER EQUIPMENT. THAT IS THE REASON WE URGE YOU TO SEND IN THE COUPON BELOW NOW. DESCRIPTIVE LITERATURE WITH PRICES WILL BE MAILED TO YOU AT ONCE.

A TWO CENT STAMP SPENT TODAY TO RETURN THE COUPON WILL RETURN DOLLARS TO YOU TOMORROW

SERVICE COUPON
TEAR OFF AND MAIL

To The A. I. Root Company of Iowa, Council Bluffs, Iowa

Please send me descriptive literature giving full detail about the new package listed on your 1925 container price list.

Name.....

Address.....

.....

The A. I. Root Co. of Iowa, Council Bluffs, Iowa

Crop and Market Report

Compiled by M. G. Dadant.

For our October crop and market page, we asked reporters the following questions:

1. How is the crop?
2. Any offers from buyers? If so, what prices?
3. What should good white extracted bring in ton and car lots?
4. Comb?

1925 CROP

All in all, according to our figures and those also of the Government report for September 1, it would appear that the honey crop for the United States this year will be slightly in excess of last year. However, this will partly be balanced by the fact that the larger crop is in those Central States which are most able to handle such a local crop without glutting of the general market.

We have gone through our reports and classified states in three different groups, as follows: Those having production below last year, those whose production is about equal to last year and those having smaller production than 1925. The list is as follows:

PRODUCTION BELOW LAST YEAR

Maine, Massachusetts, New York, New Jersey, Tennessee, Kentucky, South Dakota, Nebraska, Oklahoma, Texas, Colorado, Washington, California and Indiana.

PRODUCTION ABOUT NORMAL

Vermont, Connecticut, Rhode Island, Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Iowa, Missouri, North Dakota, Kansas, Louisiana, Arkansas, Arizona, New Mexico, Montana, Wyoming, Idaho, Oregon, Delaware.

PRODUCTION ABOVE LAST YEAR

New Hampshire, Pennsylvania, West Virginia, Michigan, Wisconsin, Minnesota, Illinois, Utah, Nevada.

There are, of course, conflicting reports from some of the states of larger production than a year ago and others smaller, depending upon the part of the state from which the reports came. We have generalized these in comparing the above list.

OFFERS FROM BUYERS

Buyers of honey have been more anxious than in 1924 in getting a supply of honey. This is probably due to the fact that the carry-over has not been large, and it has been necessary to replenish stock early. This has brought on a number of advance offers on honey and, in fact, quite a large number of purchases. We have reports of probably 20 or 30 carloads of honey having been sold. In Utah, especially, four carloads were sold at 8¼c, four carloads at 8½c and one carload each at 8¾c and 9¼c. Reports of carload shipments are at prices ranging from 8½c to 9½c per pound f. o. b shipping point. This is, of course, for good white honey. In addition, there are reports of several cars shipped out of Arizona and New Mexico, amber honey, at a price ranging from 7¼c to 7¾c.

Buyers seem to be readily willing to take carlots of white honey at prices anything less than 8½c per pound.

PRICES DEMANDED BY PRODUCERS

Since our last report in the September issue of the American Bee Journal, there seems to be a perceptible stiffening in prices demanded by producers of honey. In the Inter-mountain territory, where most of the carlot honey is to be offered, there are reports of a demand of 11c per pound for good white honey in carlots. In fact, the Wyoming Association went on record as suggesting this price to members. However, a large number of the prices suggested ranged in the neighborhood of 9½c to 10½c per pound, with most of them calling for 9¾c or 10c per pound.

Extracted white honey in ton lots is suggested by Central, Western and Eastern producers at a price from 11c to 13c per pound f. o. b. shipping point. This is not at all out of line, although there have been quite a large number of lots shipped out at a price of 9½c to 10½c f. o. b. shipping point. The price on these size lots would stabilize somewhere in the neighborhood of 10½c to 11c per pound f. o. b. shipping point for honey packed in 60-lb. cans.

It is remarkable to see the similarity this year in suggestions from all parts of the country, in fact a greater similarity than ever before since the crop and market page has been instituted.

This does not apply to comb honey, however, as comb honey seems to be still on that fluctuating price.

Many beekeepers are willing to offer their honey in less than carload shipments f. o. b. Central Western points at a price of about $4.00 to $4.25 per case for good No. 1 honey.

On the other hand, the Western producers are suggesting , in car lots, a price of from $3.90 to $4.50 per case for good No. 1.

When we realize that the Western producer is offering in carlots whereas the Central Western and Eastern is offering, likely, in lots of from 1 to 50 cases, the comparison is not desirable. There are, of course, many beekeepers selling their honey in single case lots at from $5.50 to $6.00 per case, but in neighboring towns there may be others selling as low as $3.50 to $4.00 per case for practically the same honey. As I have stated before, this is likely due to the fact that there is not any careful, systematic grading throughout the Central Western and Eastern States and the honey cannot compare generally, therefore, with that of our Western neighbors who ship in carlots and are very careful as to their grading. The time will come when all of the small lots of honey will be more carefully graded and thus demand a better price.

The writer cannot see how honey at $3.50 per case can be a very paying proposition compared with extracted honey at 12c per pound in 60-lb. cans. Undoubtedly there is a discrepancy here which will sooner or later be reconciled either by a better classification of the different grades of honey in packing or by a general tendency in favor of extracted on the part of those who have been getting such a very low price.

We venture the assertion that where five years ago probably one or two carloads of glass jars would have represented all the small glass packages being distributed to individual beekeepers, there are probably now at least from 10 to 20 cars of these same glass jars being distributed to the smaller beekeeper who is packing honey and selling either on the roadside or to the small town retail stores or direct to the consumer himself.

SUMMARY

All in all, basing our conclusions on the information obtained from reporters, there can hardly be any great changes in prices this year over a year ago, with many indications pointing to a remarkable stiffening of the price, especially in jobbing and carlot quantities.

The large increased production is in such states as Michigan, Wisconsin, Illinois, Minnesota and other Central and Eastern States, which are in a position to handle all of their own crops in their own state with a little extra effort.

On the other hand, we find big producing states like Texas, Florida and California becoming importers of honey instead of exporters, owing to short crops and unusual demand. In the case of Florida, the influx of population there has created an extreme demand for honey, so that all the local crops will be disposed of readily and quickly. In fact we learn from one big producer that he is considering importing northern white honey in carlots to supply the demand of northern people who are going there to live and want a strictly northern white honey.

We can see no reason for a change in suggested prices as given in the last issue of the American Bee Journal unless it would be toward a slight stiffening of the jobbing and wholesale prices of amber and white extracted honey. Of course, we are not yet out of the danger zone of the price cutter who throws his honey on the market quickly in early fall, but this time is rapidly passing and it would appear that the honey market is going to stabilize around prices now ruling

CLASSIFIED DEPARTMENT

Advertisements in this department will be inserted for 5 cents per word, with no discounts. No classified advertisements accepted for less than 35 cents. Count each initial or number as one word.

Copy for this department must reach us not later than the 15th of each month preceding date of issue. If intended for classified department it should be so stated when advertisement is sent.

As a measure of protection to our readers, we require references of all new advertisers. To save time, please send the name of your bank and other references with your copy.

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UNTESTED Goldens, $9.00 per doz. Good $10.00 breeders for $5.00. All guaranteed O. K. J. B. Brockwell, Barnetts, Va.

THREE-BAND Italian bees and queens; no disease; inspected by State Inspector. Select untested, $1.00, $10.00 per doz. Select tested queen, $1.50.
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1926 PACKAGE BEES — Pure Italians. Write for prices.
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AMERICAN BEAUTY Italian queens and package bees. Book early for spring delivery. Tupelo Apiaries,
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QUEENS of selected quality, 60c each, any number. Safe arrival and satisfaction guaranteed. M. C. Berry & Co.,
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I AM booking orders for May delivery on Caucasian and Italian 3-frame nuclei; also queens of either race. Yard inspected; no disease.
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GOLDEN ITALIAN QUEENS for 1925; the big, bright, hustling kind (the kind that gets the honey). Satisfied customers everywhere. Untested, 90c each; 6, $4.50; 12, $9.00 $70.00 per 100. Tested, $1.50 each. Safe arrival guaranteed.
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TEN YEARS of experience in breeding queens of quality Goldens, also gray Caucasians. Golden queens: one, $1.25; dozen, $11.50. Gray Caucasians, one, $1.50; dozen, $15.00. Pure mating. Safe arrival guaranteed in United States and Canada.
Tillery Bros., Rt. 5, Greenville, Ala.

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FOR SALE—Italian queens ready May 15. One queen, $1.00; 6 queens, $5.50; 12 queens, $10.00. W. W. Talley,
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GOLDEN THREE-BANDED and Carniolan queens. Tested, $1.00; untested, 75c each. Bees in 1-pound package, $1.50; 2 pounds, $3.50; 3 pounds, $3.25. Safe delivery guaranteed. C. B. Bankston,
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BRIGHT ITALIAN QUEENS—One, $1.00; 6 for $5.00 or 12 for $10.00. Write for prices on large orders or package bees.
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SHE-SUITS-ME QUEENS—Untested three-banders, $1.00 each; 25 or more ordered in advance, 75c each. Safein cage with initial order. Allen Latham,
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LEATHER COLORED ITALIAN QUEENS—$2.00; after June 1st, $1.00. Tested, $2.00. A. W.-Yates
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FOR SALE

FOR SALE—200 colonies of bees, 10-frame hives, with extra hive bodies and drawn combs, excluders, tanks, extractors, etc. First-class condition. Cash sale only considered.
Creech & Sons, Central City, Neb.

FOR SALE—Soiled granulated cane sugar for feeding bees.
Winkler Honey Co., Joliet, Ill.

FOR SALE—Package bee business; good locations. Well equipped shop, good 6-room home. About 500 hives bees. If you have some money, write
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FOR SALE—In western part of central Alabama, in good location for producing package bees and queens, 59 colonies of Italian bees in good shape, with good supply of spare combs and supers. No disease in this section. Want to sell bees, farm of 135 acres, cattle, horses, feed and farm implements. For full information and price write, J. A. Dennis,
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FOR SALE Seven quadruple winter cases made of shiplap to Department of Agriculture specifications, used two winters. Painted and in first-class shape, $6.00 each.
John A. Johnson, Pomeroy, Iowa.

FLORIDA bee location in famous tupelo belt; 125 colonies fully equipped, in first-class equipment, three acres land, dwelling and honey house. Also handle city property acreages, etc. Write me what you want.
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FIFTEEN colonies, 40-acre farm $550.00. Bees $3.50 colony. Lot $50.00.
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FOR SALE—5 acres of land and 85 colonies of bees. No disease; good home market. Reason for selling, poor health.
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FOR SALE—Large collection of beekeeping literature. Louis A. Loboda,
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FOR SALE—Six acres of fine land, six-room cottage, plenty of fruit trees all varieties, 3 acres land in Newington, Ford truck, 140 colonies healthy bees, most all requeened; 600-egg incubator, 500 White Leghorn chickens, 2 brooder houses and stoves, 1,000-chick capacity; 500 queen-mating nuclei, with a lot of other equipment too numerous to mention; 40 quadruple winter cases. Honey and other produce sold locally in large manufacturing district and at good prices. Will be glad to show this to anyone who can come and look it over. Price $13,500.00.
A. E. Crandall, Berlin, Conn.

FOR SALE—100 colonies bees in 14-frame hives; 300 10-frame supers, all on wired foundation; no disease. This outfit holds world's record production. Location with outfit.
S. F. Lawrence, Dwight, N. Dak.

FOR SALE—800 colonies and modern extracting outfit. Located in what is known as "The land of milk and honey" of the middle west. If you have cash and mean business write to "Beekeeper," care American Bee Journal.

HONEY AND BEESWAX

HONEY FOR SALE—White and light amber, in any quantities desired. Write for prices and sample.
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Dingman & Wilson, Props.

FOR SALE—Well ripened sweet clover honey in 5 and 10-lb. pails. Write for prices. Oscar Skow, Dunlap, Iowa

FOR SALE—15,000 lbs. of Dakota white and sweet clover honey mixed in 5, 10, and 60-lb. cans. Make me an offer.
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FOR SALE—White clover Wisconsin extracted honey in 60-lb. cans.
Wm. Habermann, Lodi, Wis.

FOR SALE—100 cases white and sweet clover honey in new cans. Finest quality, and the price is right.
L. A. Thrall, Anthon, Iowa.

FOR SALE—Water white clover honey, absolutely the finest quality in the world. None better. In five-gallon new cans two to the case, 11c f. o. b. shipping point. Sample 15c. M. C. Berry & Co.,
Box 697, Montgomery, Ala.

FOR SALE—1925 crop of clover and buckwheat honey in 60-lb. cans; clover 13c, buckwheat 10½c lb., f. o. b. Pembroke; sample 10c. John N. DeMuth & Son,
Pembroke, N. Y.

DELICIOUS white extracted northern honey gathered from alfalfa, basswood, sweet clover; put up in new 60-lbs. Sample 15c.
Geo. Seastream,
Route No. 1, Moorhead, Minn.

FOR SALE—Choice fancy 1925 crop white clover extracted honey in new 60-lb cans, at 12c.
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FOR SALE—New crop clover honey in good second-hand 60-lb. cans, 2 in a case, $14.00 per case. Chas. W. Zweily,
Willow Springs, Ill.

FOR SALE—Clover honey in 60-lb cans, 10c per pound. Sylvester Legat,
Spring Valley, Ill.

FOR SALE—White and amber extracted honey. State quantity wanted.
Mathilde Candler, Cassville, Wis.

FOR SALE—Our fine quality 1925 crop white and sweet clover honey put up in 60-lb. cans, two to a case. Write for prices. Sample 20c. Martin Carsmoe,
Ruthven, Iowa.

FOR SALE—Amber honey in five-gallon cans, two to the case, 9c a pound f. o. b. shipping point. Sample 15c.
M. C. Berry & Co.,
Box 697, Montgomery, Ala.

FOR SALE—50,000 lbs. of very choice white extracted and chunk comb clover honey. Write for prices.
J. M. Gingerich, Kalona, Iowa.

FOR SALE—A quantity of extracted white clover and sweet clover honey of highest quality. Write for prices, stating quantity desired and how put up. Sample 10c.
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FOR SALE—New crop honey, finest quality, put up in 60-lb. cans, also 5-lb. pails. Prices on request.
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SWEET CLOVER COMB HONEY—None better. Also Dark Cornish and Mottled Houdan chickens.
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FOR SALE—Sweet clover and white clover honey in 60-lb. cans; white to water-white in color and heavy body. Beekeepers who need honey for their trade and solicitors write for prices.
The A. I. Root Company of Iowa,
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WHITE CLOVER HONEY—Any quantity.
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CLOVER AND BASSWOOD HONEY blended by the bees. Color white, body fine. Prices upon request. State amount wanted.
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NEW COMB and extracted clover honey: prices on request.
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DESIRE to hear from producers of basswood flavored comb and extracted honey. Give lowest price wanted and how packed.
Linwood Apiaries, Mahtomedi, Minn.

WANTED—Car or less lots of extracted clover honey. Mail sample and quote lowest cash price. Also get cut price circular on cans and pails for your 1925 honey crop.
A. W. Smith, Birmingham, Mich.

FINE QUALITY clover honey. Prices upon request. Case or carload lots.
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HONEY FOR SALE in 60-lb. tins. Clover, crystallized at 13c per pound; clover liquid at 14c per pound.
Hoffman & Hauck, Inc., Ozone Park, N. Y.

FOR SALE—Our own crop white clover and amber fall honey in barrels and cans; also white alfalfa in cans. State quantity wanted and we will quote prices. Samples on request.
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FOR SALE—White and water white sweet clover honey; put up in 5-gallon cans. Strictly first-class in every way. Write for prices, stating quantity wanted.
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FOR SALE—White honey in 60-lb. cans; also Porto Rican in 50-gal. barrels. Samples and prices on request.
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TWO NEW 30-gallon galvanized iron honey tanks with covers. One single burner lamp stove and wax tube, slightly used. One new 8-inch Root uncapping knife. Five 10-frame metal covers and 10 inner covers, used one season. Above lot for $15.00, or will trade for new or slightly used Jumbo hives, hive stands, 4x5 section supers or Root three-ply Jumbo foundation. No disease, and satisfaction guaranteed.
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WANTED—Hand power extractor, reversible pockets.
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NEW improved 4-frame, reversible extractor, 9¾ baskets, $45.00.
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FOR SALE—Good second-hand 60-lb. cans, two cans to a case, boxed. We have large stocks of these on hand. Please write for prices if interested. We are offering only good cans and good cases.
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WESTERN BEEKEEPERS—We can demonstrate that you can save money on buying bee supplies of best quality. Write for our latest price list.
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MISCELLANEOUS

"BEES AND HONEY" is the only bee paper in all the great Pacific Northwest—soon to be America's most wonderful beekeeping territory. Sample copy free. American Bee Journal ($1.50) with Bees and Honey ($1.00) both together one year for only $2.00. Address George W. York, Editor, 524 First Ave. So., Seattle, Wash.

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WE HAVE NOW ON HAND from Paris, a number of copies of the excellent work of Perret-Maisonneuve, in French, entitled "L'Apiculture Intensive & L'Elevage des Reines." The first shipment was delayed over two months. The price of this very progressive work is $1.50 by mail.
American Bee Journal, Hamilton, Ill.

WESTERN HONEY BEE, 428 S. Hewitt St., Los Angeles, Calif., published by Western beekeepers, where commercial honey production is farther advanced than in any other section of the world. $1.00 per year. Send for sample copy.

GLEANINGS IN BEE CULTURE, published at Medina, Ohio, is the most carefully edited bee journal in the world. Its editor-in-chief is George S. Demuth. Its field editor is E. R. Root. Ask for sample copy.

HAVE YOU any Bee Journals or bee books published previous to 1900 you wish to dispose of? If so send us a list.
American Bee Journal, Hamilton, Ill.

MAKE queen introduction sure. One Safin cage by mail, 25c; 5 for $1.00.
Allen Latham, Norwichtown, Conn.

WANTED

YOUNG GERMAN, three years in America, desires position this winter with extensive beekeeper in Texas or Southwest; has considerable experience, physically and mentally, clean, willing worker. Reference;. Wages satisfactory if expenses, board and lodging are met.
Adolph Land, Rt. 1, Pomeroy, Ia.

WANTED—Any amount off grade honey. State condition, quantity, price. Large sample necessary. Arthur Husted,
1202 Grant St., Madison, Wis.

WANTED—Strictly sober man of ability and experience. Extracted honey, healthy location, good house. Fine chance to make good for right man. Reference. Write if you mean business. Harvest begins January. W. B. Gehrels, Box 27 Puntarenas, Costa Rica, Central America.

WANT bees or equipment for good interest in Minnesota forty acres or quarter.
A. M. Wise, Appleton, Minn.

WANTED—Basswood honey in 60-lb. cans. Forward samples.
Sioux Honey Association, Sioux City, Iowa.

NEED—Several thousand cases fancy white white clover comb honey, also extracted, graded according to Wisconsin or Colorado Association rules. Quote lowest price and quantity for cash. Ref., Lincoln Trust and Savings Bank, Chicago.
A. L. Haenseroth,
5932 N. Hamilton Ave.,
Chicago, Ill.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendering.
Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

Department Color Grader Ready

Department Circular No. 364, The Color grading of Honey, is now ready for distribution and may be obtained on application to the Bee Culture Laboratory of the Bureau of Entomology or to the Bureau of Agricultural Economics.

Besides an outline of the investigation of colors of honey in preparation for standardizing the grades of extracted honey, a description is given of a type of grader which may be used to grade extracted honey accurately according to the United States Standard grades, which are also announced therein.

Those who do not yet have access to a grader may send samples of honey for grading, either to the Bee-culture Laboratory or, if preferred, to the Bureau of Agricultural Economics, which will then issue a certificate giving the grade of the sample of honey. No charge will be made for this service, but it is requested that at least 4 ounces of honey be sent in a proper mailing tube. After samples have been graded, they will be retained by the Bee-Culture Laboratory and used in the study, now under way, of the changes in composition of honey due to age and other causes, in order to make the samples valuable for future studies.

All available information as to floral source of honey, year and month when stored in the hive and locality where produced should be given.

Bees and Avocado

Bees gather pollen from the avocado plant. The quantity of honey, if any, is very small. Bees visit the blossoms quite freely at all times of the day, but never with the vigor and hum that is displayed in case of other fruit bloom, such as apricots, apples and plums.

There are no large areas planted to avocadoes, so they could not be counted as of any considerable value for building up, certainly not as yielding a surplus. Some varieties bloom as early as February 1st and later ones as late as June 1st. A Mr. Clark, at Point Loma, San Diego County, has done considerable experimenting to determine how much value bees were in the setting of the avocado fruits.

Ray K. Bishop, Orange, Calif.

Queens Queens Queens

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We are now prepared to furnish queens promptly from our strain of Hustlers. They are bred for business and will get results for you. Cells are reared in colonies boiling over with bees, thus insuring large, vigorous, prolific queens. All queens are mated in large three-frame nuclei and are allowed to start laying before caging. Only one grade—Select. You cannot buy better queens anywhere at any price.

Select untested, $1.00; 12, $10.00; 100, $70.00. Tested, $1.50; 12, $15.00.

Safe arrival and satisfaction guaranteed on every queen.

There is no disease in our apiaries, and never has been.

CANEY VALLEY APIARIES

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Has stood the severest tests during the past four years. The Alcohol-Formalin Solution has passed tests where water-formalin solution and other water solutions have frequently failed, because they do not always penetrate sealed larvæ. Water will not penetrate propolis.

The cost of Alcohol-Formalin is a small part of the treatment, only one recurrence after using water-farmalin may be enough to offset the extra cost of Alcohol-Formalin many times over.

Save your infected combs by disinfecting with

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This patent covers ALL solutions containing alcohol, formalin and WATER. For full information ask your dealer or write to

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Leather Colored Italian Bees and Queens

ROOT AND MOORE STRAIN

100 Queens at ..... $ .75 each — 25 Queens at ..... $ .90 each

50 Queens at ..... $ .80 each — Less Queens at ..... 1.00 each

Packages $2.50 per 2 pounds

Delivery after March 1st. Satisfaction guaranteed.

ROY C. PATTEN

King's Lane, Whittier, Calif.

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Untested 1, 80c; 10, 75c; 100, 70c each

Safe arrival and perfect satisfaction guaranteed in the United States and Canada.

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Good Stock-Bred Right-Shipped Right

These are the three great essentials for producing good Queens. Not a complaint this season and less than one-tenth of one per cent dead east of California.

50c each, any number.

High Grade Three-Banded Italians only.

JNO. C. HOGG, Ramer, Alabama

THRIFTY QUEENS

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each in lots of 10 or over. Smaller lots 60c each.

Safe arrival and satisfaction guaranteed in the U. S. and Canada. Pure mating and satisfaction the world over.

Thirty-three years of careful breeding assures you of good queens.

W. J. FOREHAND & SONS

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Two frames well covered, two additional pounds, queen introduced and laying enroute to you, all for $5. Best package and best price in the South. One-fifth down books order for May delivery.

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High Grade Italian Queens

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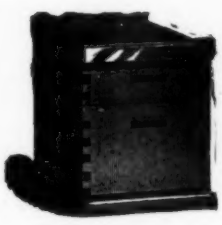

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We are ready at any time of the year to take in small or large lots of extracted honey
Send us a sample and advise quantity you have and the price wanted

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If Langstroth had offered to teach you what he knew about bees for 4c a year. would you learn of him?

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One or 1,000 at 50 cents per queen
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Burr Combs

Red Letter Days

By Frank C. Pellett.

The most interesting experiences often come to us unexpectedly. Often the things which one remembers longer are of no particular significance to others. Most of us live Doctor Jeykl and Mr. Hyde lives, to a certain extent. We live the conventional everyday lives in which we do the things others do and say the things everybody says, because, like sheep, we follow the prevailing trend. Then we live a secret little life all our own in which we dream of living very differently, with now and then a day in which we get away from the conventional everyday living and really do as we please without regard to what the rest of the world does. Most of the time we pretend to like the things the rest of the world likes and strive hard to get the things the rest of the world wants because we fear to be different.

Now and then we catch some friend off guard when he gives us a glimpse of the ideal life he would like to live and perhaps, to our surprise, we find that he likes the same things we do. If it happens that we have a chance to enjoy this dream-life for a few hours together it is likely to make a red letter day for us both.

For ten years I have been visiting the beekeepers far and near and on every trip I find some congenial spirit who likes the things which appeal to me and, forgetting everything else, we have a wonderful time until I am compelled to move on again.

It often happens that there is not a single event in the day which is other than commonplace; nothing which seems worth the telling, and yet we may be stirred to the depths and never forget the experience. Such a day came to me recently when it was my privilege to spend a few hours riding over the unbroken prairies in northern Canada, fresh from the hand of the Creator, unspoiled by man. It recalled the prairies of Iowa as I knew them in the days of my childhood when our roads were but winding trails across waving grass with swales and sloughs in every hollow. It was a real joy to me to see again the prairie in its blaze of midsummer bloom.

The untouched prairie is a wonderland of flowers following each other in rapid succession from early spring until frost. From the first spring crocus before the last traces of snow have disappeared until the latest goldenrod, not a day passes without its show of bloom. To drive for an hour without seeing a fence, or a furrow turned is a privilege offered to but few of the younger generation, but worth a long journey. To see the mother ducks feeding their young in the shallow water and to stalk them in an effort to secure a lifelike photo thrills me far more than the broken flesh and bloody feathers which the sportsman gets when he has killed his game.

Leaving out such things as births, deaths and marriages, which are in a class apart from ordinary events, the days which stand out most vividly in my memory are days like those. When I catch some new friend off guard, nine times out of ten I learn that he has a similar weakness. Perhaps like Guy LeStourgeon, he loves to wander about the ruins of old missions and seek the origin of the folk lore common to the southwest. You might meet Guy a hundred times and never dream of this hidden secret life which he lives, but drop a chance remark about some superstition of the Mexican peon, and if your interest also lies in that direction, he will give you a happy hour indeed. Someone has said that in order to make sure of following the right occupation the individual has only to decide what he would do if he had a million dollars and was under no necessity to labor. On that basis I think my Texas friend would be an archeologist or a historian.

Solitude

Afoot and alone I once had a delightful time tramping in the Mohave Desert in California. It is a pleasing and soul-satisfying experience, providing you like such things. If you chance to be one who loves the bright lights and easy cushions it is probable that you would be bored to the point of distraction. It all depends upon the point of view. Nature lovers, like me, thank the Lord for the desert, for it is the one region likely to remain in its primitive condition for some time to come.

Early in the morning everything is as quiet as the grave. Not a sound is to be heard, not a breath of air is stirring and not a living thing is seen to move in any direction. The very nature of the environment makes you feel disposed to retire within yourself and give free rein to your fancy. How one's imagination does soar! One feels that were he an artist he could paint a picture which would be a masterpiece, or if a poet could compose something which would uplift the heart of the dullest plodder. The air is balmy and cool early in the day and one unconsciously fills his lungs and takes a rapid stride which sets his heart to pounding.

As the sun rises higher the sand under one's feet gets hot, the light becomes so intense as to make one contract the muscles of his face to protect his eyes and to seek some shade. Shade is scarce. The dwarf bushes offer no shelter and there is nothing but the Joshua trees, weird and much branched yuccas which are worth coming a thousand miles to see. Since they have no foliage such as graces the deciduous trees of the humid region, they offer scant protection from the rays of the burning sun. Their long, narrow and much thickened leaves turn their edges to the sun and at the end of each is a long needle as sharp as a dagger.

It would take a whole book to tell of the attractions of the desert, and after one such day one dreams of the time when he can go again.

Big Game

Another red letter day to me was when, in driving across Canada's big game preserve, we came suddenly upon a herd of elk as we crossed the crest of a hill. The animals had been quietly lying in the grass, but began moving as we came near. There were perhaps a hundred of those splendid animals. It was an inspiring sight. With nothing but the unbroken prairie, save here and there a small tree, we had spread before us a beautiful sample of America as our ancestors found it. At last we seemed to have gone so far beyond the bounds of civilization as to find nature as she was before the white man came.

The Woodsman's Philosophy

There is something of the "call of the wild" in all of us. Some delight in the cultivation of the soil, others in the excitement of the chase, but ever there is a tendency to revert to the primitive and live again the lives of our ancestors of centuries past. Most of us would find our interest cooling if compelled to remain long in the wild state. Now and then, however, we find one like a certain Canadian woodsman who says: "The city man talks like a philosopher and lives like a fool." This woodsman figures that the city man spends most of his life paying for a home close in with all modern conveniences, when he could go into the north woods and build for himself a home of logs with all essential comforts at no cost except a few hours of labor. He calls attention to the fact that when the city man goes to the woods he exclaims "O Heaven!" but when the woodsman goes to town he says, "Oh, Hell!"

The more I see of life, the more attractive beekeeping as an occupation becomes. The beekeeper has a long period of rest when his bees require no care and his work takes him every nice day into the open where nature evidently intended man to live.